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THE BILLINGSLEY DAIRY: A FAMILY ENTERPRISE IN THE PRADO BASIN

CA-RIV-3508-H

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through archival research. Most of the other dairy operations in the basin were recorded sufficiently well during the process of acquisition to provide a basis for research. The course of events prior to acquisition of this property led to demolition of the dairy before the normally detailed assessment was accomplished by the Corps of Engineers.

During the study, structures and features not previously noted were exposed and closely examined. The entire complex was cleared and carefully examined to provide architectural details and provide answers to such questions as whether the dairy met the requirement for certification which were promulgated during the mid and late 1930's. The physical plant at CA-RIV-3508-H was found to be substantially in compliance with the 1939 California regulations for dairy certification. Two relatively dense deposits of cultural remains were explored, in part, to provide confirmation of and enhance the archival research findings. The deposits were found to be considerably disturbed and of limited value. No support was discovered for early occupation of the site (before the known occupation of 1911), a possibility suggested by prior studies.

The site was found to be representative of late single-family, dry-farm, feed-lot dairy operations in the Prado Basin. A single remaining structure was found to be representative of important developments of the dairy industry, and a recommendation is made for preserving and reconstructing the milk house in a historical park. A recommendation is made that the site is a valid contributing element within an eligible district representing the stock-raising industry. A recommendation is made for more extensive archival research. Revisions and additions are suggested to the Prado Basin research design.

**THE BILLINGSLEY DAIRY:
A FAMILY ENTERPRISE IN THE PRADO BASIN
CA-RIV-3508-H**

R. Paul Hampson, Roberta S. Greenwood, and Mark T. Swanson

with a contribution by
James Schoenwetter



Prepared for:
U. S. Army Corps of Engineers, Los Angeles District
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Los Angeles, California 90053-2325

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ABSTRACT

Selection of CA-RIV-3508-H for archaeological testing was based on several considerations. The site was thought to be representative of single family dairy operations in the Prado Basin during the final years of prominence which the dairy industry enjoyed throughout the Prado Basin. There was also some confusion over ownership and tenants on the property which required clarification through archival research. Most of the other dairy operations in the basin were recorded sufficiently well during the process of acquisition to provide a basis for research. The course of events prior to acquisition of this property led to demolition of the dairy before the normally detailed assessment was accomplished by the Corps of Engineers.

During the study, structures and features not previously noted were exposed and closely examined. The entire complex was cleared and carefully examined to provide architectural details and provide answers to such questions as whether the dairy met the requirements for certification which were promulgated during the mid- and late 1930s. The physical plant at CA-RIV-3508-H was found to be substantially in compliance with the 1939 California regulations for dairy certification. Two relatively dense deposits of cultural remains were explored, in part, to provide confirmation of and enhance the archival research findings. The deposits were found to be considerably disturbed and of limited value. No support was discovered for early occupation of the site (before the known occupation of 1911), a possibility suggested by prior studies.

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The authors wish to dedicate this report to Steven Schwartz, formerly with the Environmental Planning Section, Los Angeles District, U. S. Army Corps of Engineers (CoE). Through the several years that INFOTEC Research, Inc. and Greenwood and Associates have been conducting research for the CoE, Steve has supervised various contracts and work orders with understanding and enthusiasm, has contributed information from his own knowledge and experience, improved our submissions with thoughtful editing, and has facilitated, coordinated, and administered in the best interests of the cultural resources.

We also acknowledge gratefully the efforts of all the crew, as named individually in the text, who never slackened their work in the rain and mud.

The interpretations have been assisted by the recollections of Mr. Lynn Lillibridge who visited the site and provided insight from his own dairy experience in the immediate vicinity.

R. P. H.
R. S. G.
M. T. S.

TABLE OF CONTENTS

ABSTRACT	iii
ACKNOWLEDGEMENTS	v
1. INTRODUCTION	1
Purpose of the Project	1
Previous Research	1
Location	3
Setting and Environment	3
Organization of the Research	5
2. HISTORICAL BACKGROUND	7
Introduction	7
Previous Research	7
Early History	10
R. W. Rives' Property, 1873-ca 1888	17
Pasadena Rincon Land and Water Company, ca 1888-1890	20
Charles E. Harwood, 1890-1898	20
The Strong Ranch, 1898-1917	22
Billingsley Tract, 1917-1942	25
Acquisition for Flood Control	27
3. FIELD METHODS	29
Field	29
Laboratory	33
4. STRUCTURES	35
Structure 1	35
Structure 2	37
Feature 5	39
Structure 3	41
Structure 4	44
Structure 5	47
Structure 6/9	62
Feature 2	67
Feature 7	70
Structure 7	79
Structure 8	79
Feature 1	79
Feature 3	84
Feature 4	85
Feature 6	86

5. CULTURAL MATERIALS	87
Ceramics	87
Glass	90
Bottles	90
Canning Jars and Lids	90
Beverages	90
Foods and Condiments	96
Medicinal	96
Cleaning Products	96
Other Domestic Glass	97
Other Household/Personal Items	97
Cutlery/Kitchen	97
Toys	98
Recreation	98
Smoking	98
Shoes	99
Buttons and Jewelry	99
Subsistence	99
Cans	99
Shell	100
Bone	100
Other	101
Economic/Industrial	101
Architectural	102
Plumbing	102
Electrical	102
Hardware	103
Materials	103
Transportation	103
Other Artifacts	103
6. SYNTHESIS	105
7. ASSESSMENT AND RECOMMENDATIONS	115
Evaluation	115
Recommendations	115
Implications for the Research Design (D0-16)	116
REFERENCES CITED	117
APPENDIX A: CA-RIV-3508-H PALYNOLOGY	125

Tables

2.1 Billingsley Dairy Structures	26
5.1 Ceramic Marks at CA-RIV-3508-H	88
5.2 Glass Marks at CA-RIV-3508-H	91

Figures

1.1	Vicinity map	2
1.2	Site location map	4
2.1	General area map	9
2.2	Plat of the Rancho El Rincón	12
2.3	Plat of some tracts, Rancho El Rincón, 1858	14
2.4	Exhibit F, 1873	15
2.5	Map of Rancho El Rincón, 1868	16
2.6	Plat, south part of Rancho El Rincón	18
2.7	GLO Plat of Township 3S, Range 7W, 1853-1875	19
2.8	Township 3S, Range 7W, 1878	21
2.9	Billingsley Tract ca 1940	24
3.1	Site map, CA-RIV-3508-H	31
3.2	Exposure block, northwest corner of Structure 2	32
4.1	Structure 1	35
4.2	Structure 1 map	36
4.3	Structure 2 map	38
4.4	Feature 5 (residence cellar, stairwell)	40
4.5	Feature 5 (residence cellar, fill detail)	40
4.6	Structure 3 (garage foundation) map	42
4.7	Structure 3 (garage foundation)	43
4.8	Structure 3, stratigraphic detail	43
4.9	Structure 4 (water tank foundation) map	45
4.10	Structure 4 (water tank foundation)	46
4.11	Structure 4, foundation detail	46
4.12	Structure 4, shower detail	47
4.13	Structure 5 (milk house) map	48
4.14	Structure 5, east wall elevation	49
4.15	Structure 5, west wall elevation	50
4.16	Structure 5, looking west	51
4.17	Structure 5, looking east	51
4.18	Structure 5, looking north	52
4.19	Structure 5, looking south	52
4.20	Structure 5, milk room, entry/drain detail	53
4.21	Structure 5, milk room, interior detail	53
4.22	Structure 5, milk room, interior detail	54
4.23	Structure 5, milk room, north wall detail	54
4.24	Structure 5, milk room, east window detail	55
4.25	Structure 5, east wall, exterior detail	56
4.26	Structure 5, wash room, west wall detail	57
4.27	Structure 5, wash room, foundation detail	57
4.28	Structure 6/9 (horse barn/milking barn) map	63
4.29	Structure 9 (horse barn) foundation detail	64
4.30	Structure 9, foundation detail	64
4.31	Structure 9, foundation detail	65
4.32	Structure 9, east end detail	65
4.33	Structure 9, east end detail	66
4.34	Structure 9, Feature 2 map	68
4.35	Structure 9, Feature 2, looking south	69
4.36	Structure 9, Feature 2, looking south	69
4.37	Structure 9, Feature 7	70

4.38	Structure 6, milking barn, looking west	71
4.39	Structure 6, milking barn, looking southeast	71
4.40	Structure 6, milking barn, looking east	72
4.41	Structure 6, milking barn, looking west	72
4.42	Structure 6, milking barn, gutter drain	74
4.43	Structure 6, milking barn, stanchion support	74
4.44	Structure 7 (water trough) map	80
4.45	Structure 7 (water trough, looking northwest	81
4.46	Structure 8 (water tank foundation) map	82
4.47	Structure 8, foundation detail, looking southeast	83
4.48	Structure 8, foundation detail, looking southwest	83
4.49	Feature 1, water distribution system valve	84
4.50	Feature 3, stanchion detail	85
4.51	Feature 4	85
5.1	Stoneware jug	90
5.2	Ceramic and glass dates	95
6.1	1936 aerial photograph interpretation	106
A.1	Pollen represented at CA-RIV-3508-H	126

1. INTRODUCTION

Purpose of the Project

This investigation was undertaken to provide information needed by the Los Angeles District, U.S. Army Corps of Engineers (CoE), for project and land-use planning purposes. Specifically, the work was designed to provide the basis for determining the significance of an untested archaeological site, and to make recommendations for conducting a mitigation program if further study or cultural resource management was found to be warranted.

The site is located within a flood control basin (Figure 1.1), and the water level behind Prado Dam has risen above its elevation several times in the past (Steven Schwartz, personal communication 1988). It may be further impacted by proposed improvements to Prado Dam as part of the Government's flood control project along the Santa Ana River. This study is prompted, therefore, by the need to assess the significance of the cultural resource with respect to its eligibility for nomination to the National Register of Historic Places (NRHP).

The CoE selected this site for testing as a representative of one of the most typical and historical economic endeavors which led to the settlement of the Prado Basin--the dairy industry. The study is part of a sequence of research efforts which have included surveys, focused historical reports, a regional research design for the Prado Basin, and other test excavations. It should be reviewed, particularly, in the context of the document on the dairy industry as a whole (Swanson and Hatheway 1989) and the overall research design (Greenwood and Foster 1989).

Previous Research

The site was first recorded in 1979 as part of a student survey by a California State University, Long Beach field methods class (Rosenthal and Schwartz 1979). No trinomial was obtained; the locality was called Site No. 2, and subsequently referred to as CSULB-2. It was categorized as a possible farm house, with elements including two foundations, a "dump," and a modern milk shed. From the eucalyptus trees, the age of CSULB-2 was estimated as 50-60 years.

Additional structural remains and features were observed during a visit to the site on June 30, 1988 by S. Schwartz, R. S. Greenwood, and J. M. Foster. Prior to the test excavation, a site record form was completed and assigned the trinomial designation of CA-RIV-3508-H.

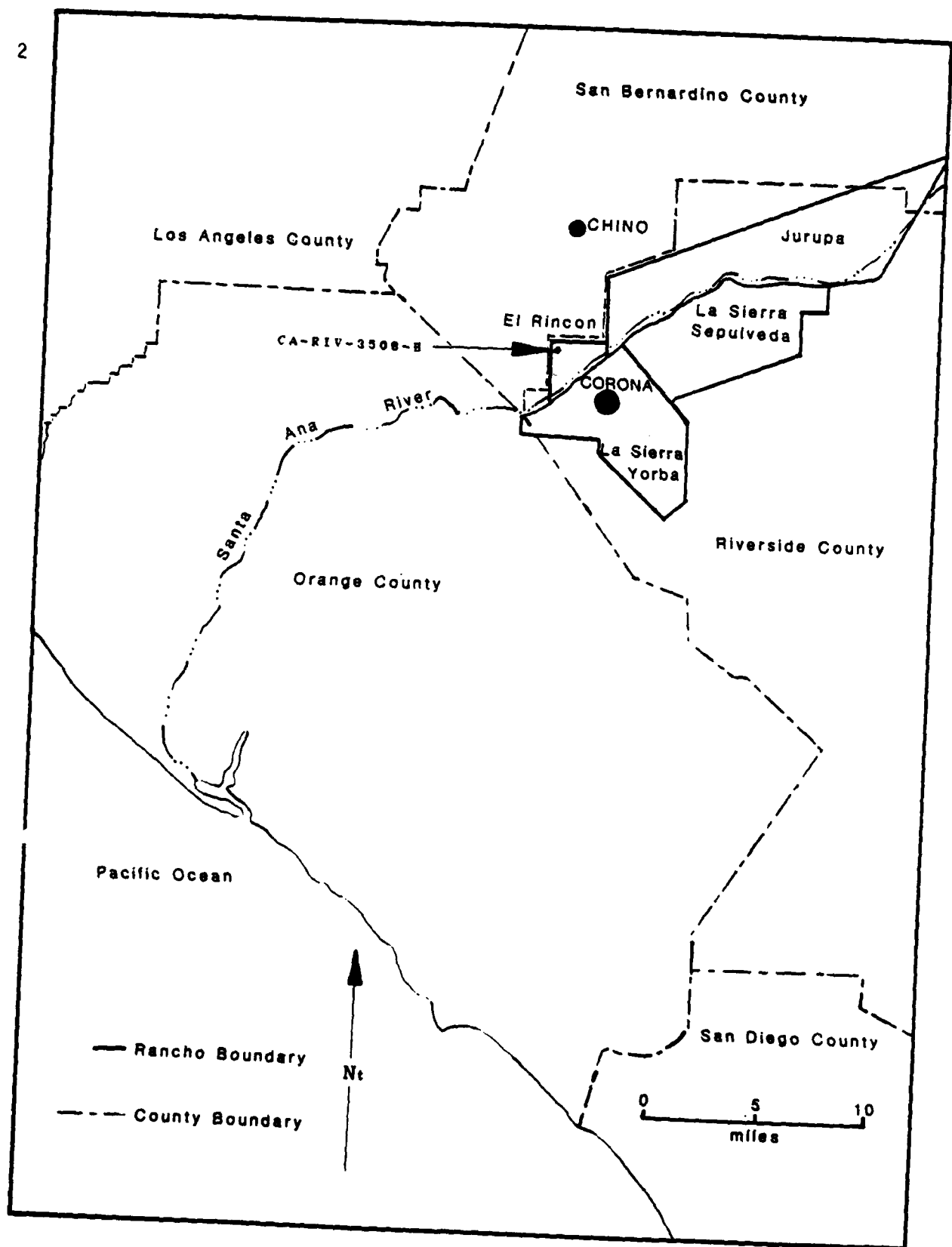


Figure 1.1. Vicinity Map.

Some questions emerged over the years about the ownership, dates, and functions of the observed remains. Langenwalter and Brock compiled preliminary data suggesting occupation had begun at least by 1899 and continued until 1936. Known or predicted attributes included an adobe "of unknown origin, built in earlier days by an unknown Spaniard," a vineyard, Japanese farm, German-Swiss dairy, and church parsonage (1985:8.51-52). The associations with both the Rincon Union Congregational Church and the Reichmuth family have since been disproved as locational errors, as documented by Swanson in Chapter 2.

Location

The entrance to the Billingsley Dairy (CA-RIV-3508-H; Parcel 162: 34.14 acres) is located on the west side of Pomona-Rincon Road, approximately 1.3 miles south of the intersection with Euclid Avenue, northwest of Corona, Riverside County, California (Figures 1.1 and 1.2). A majority of the area examined during this study is located in the northwest quarter of the southwest quarter of the southeast quarter of Section 7, Township 3 south, Range 7 west, San Bernardino Meridian. Property elevation ranges from 510 feet MSL along the eastern boundary to 600+ feet MSL in the southwestern corner; most of the structural remains lie between 508 and 550 feet MSL.

Setting and Environment

The project area is located on the Chino Plain at the base of the Chino Hills. Modern intrusions include Highway 71, which crosses the property roughly north-south and delineates the westernmost extent of the archaeological portion of this study. Chino Creek runs from north to south approximately 0.2 mi (300 m) to the east, joining the Santa Ana River approximately 1.2 mi (2 km) to the south.

The Santa Ana valley is enclosed on all sides: to the north rise the San Gabriel and San Bernardino Mountains with coniferous forests; the chaparral-covered Santa Ana Mountains and Chino Hills border the south and west; with the Jurupa Mountains to the southeast and the San Jose Hills on the northwest. The valley and floodplain were originally covered with the forbs and perennial bunch grasses of the Coastal Sage Scrub, although long cultivation and heavy grazing have left little of the native vegetation. Construction of Prado Dam has resulted in an elevated water table which supports an extensive riparian woodland. The principal tree in the immediate vicinity is black willow (*Salix gooddingii* var. *variabilis*), interspersed with occasional cottonwoods (*Populus* sp.) (Greenwood, Frierman, and Foster 1983:3-4). At the time of the field investigation vegetation on the eastern half of the site consisted largely of introduced eucalyptus trees. Originally planted near the road(s) as windbreaks, and still retaining that configuration at the time of the 1942 appraisal for the CoE, the eucalyptus trees have spread to form a grove covering most of the eastern portion of the property (Figure 3.1). Some of the eucalyptus, and other trees, are growing within structural foundations, particularly at Structures 2, 6, 7, and 9.

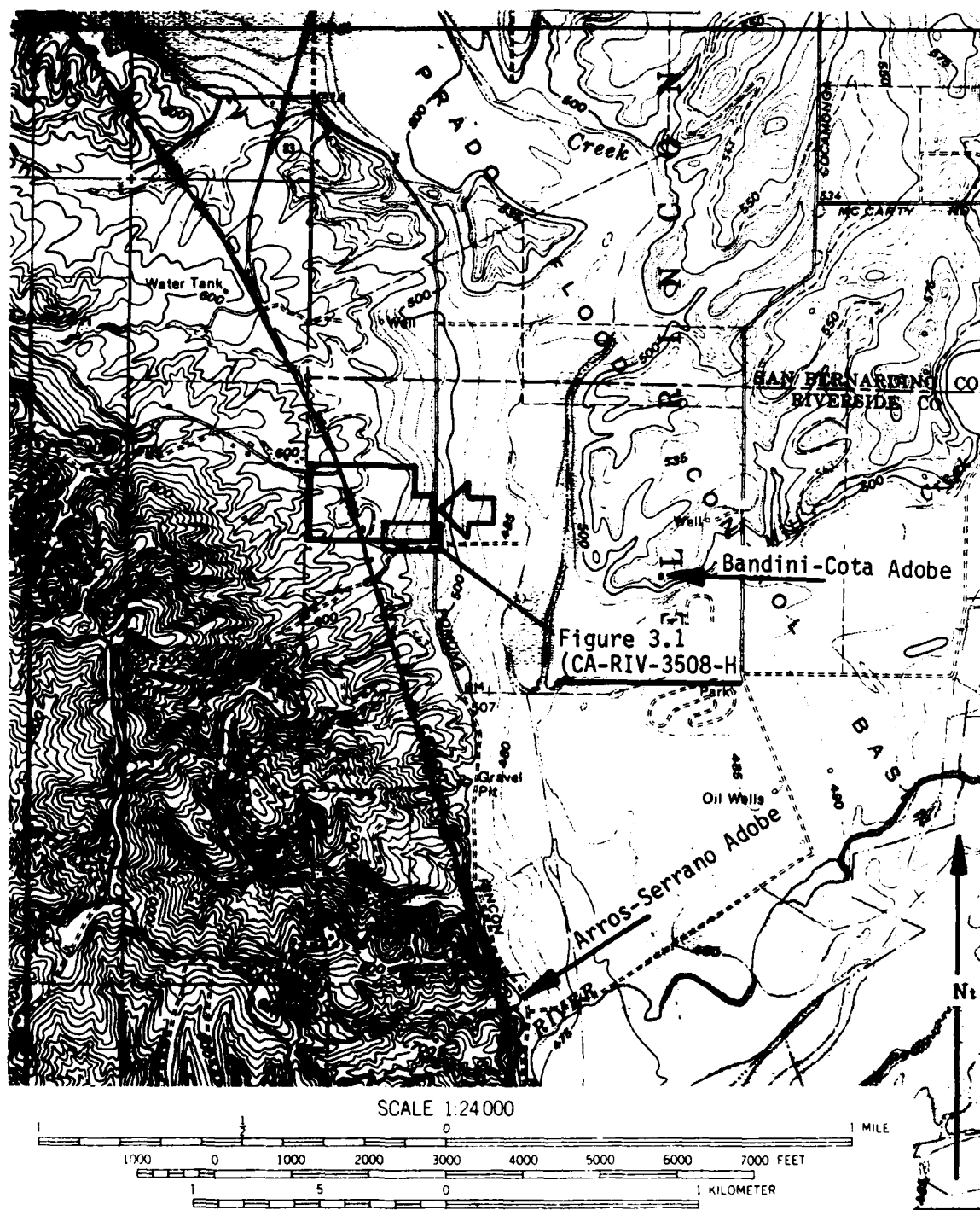


Figure 1.2. Site Location Map (Portion of USGS 7.5' Prado Dam Quadrangle, 1981).

The topsoil over much of the property is a porous gravelly loam, approximately 18 to 24 inches thick. The lower eastern portions of the parcel have a clay loam topsoil. The subsoil is a gravelly clay loam. The portion of the site east of Highway 71 and west of the dairy structures has been cultivated and seeded with mixed grasses for several years in a dry farming operation designed to provide cover for game birds and a training area for bird dogs.

Organization of the Research

The historical background was compiled prior to field work by Mark T. Swanson (Chapter 2). Swanson visited the site during excavation, addressed additional questions which emerged, and brought Mr. Lynn Lillibridge to the site. Mr. Lillibridge had operated a comparable dairy "just down the road" east of Prado, and graciously contributed his recollections.

Test excavations were conducted from February 20 through March 3, 1989, under the direction of the principal investigator, Roberta S. Greenwood; R. Paul Hampson acted as field director. Those assisting were Gwendolyn R. Romani, crew chief; Helle Girey, laboratory supervisor; and Glenn A. Brown, Steven Dies, Philip A. Fulton, Lorin Jacobson, Michael Ohnerson, Richard V. Olson, Joanne M. Sanfilippo, James J. Schmidt, Kathleen S. Vander Veen, and June Wishner. John M. Foster assisted in the direction of backhoe trenching.

Soil samples were analyzed for their palynological data by Dr. James Schoenwetter, Arizona State University, and his report is included as Appendix A.

After analysis as described in Chapter 3, meaningful cultural materials were deposited for curation at the San Bernardino County Museum, Redlands.

2. HISTORICAL BACKGROUND

Mark T. Swanson

Introduction

This research has been undertaken to determine the potential significance of a historic archaeological site. This entails documentation of the site's history and determination of its ownership and function through time. It also addresses pertinent issues raised in a recent study of the dairy industry in the Prado Basin (Swanson and Hatheway 1989).

CA-RIV-3508-H is located along the Pomona-Rincon Road, itself a historical transportation route through the Prado Basin (Hatheway 1989). The site is situated largely in the southwest quarter of the southeast quarter of Section 7 of Township 3 South, Range 7 West, of the San Bernardino Meridian (Figure 1.2). Traditionally, it has been considered a part of the El Rincon land grant, set aside since the days of Mexican rule in California. CA-RIV-3508-H is located about 0.75 mile west of the Bandini-Cota Adobe (CA-RIV-653-H), the oldest historic site within the Prado Basin and the center of the El Rincon grant. Between CA-RIV-3508-H and the adobe is Chino Creek, which enters the Santa Ana River about two miles to the south. The western half of the Prado Basin is largely formed by Chino Creek's lower valley.

CA-RIV-3508-H is located on rolling ground west of Chino Creek. The topsoil has been characterized as gravelly loam and clay loam, about 18 to 24 inches thick; the subsoil, gravelly clay loam (Billingsley Tract ca 1940). When the site was visited in 1985, it had largely been cleared, although there were trees adjacent to the Pomona-Rincon Road. A concrete foundation was still visible, as were the remains of other structures (Langenwaller and Brock 1985:8.52). An aerial photograph taken in 1987 suggested that the site area remained clear, with trees present along the margin of the road (Rupp Aerial Photography 1987).

Previous Research

There had been some confusion about the location and identity of CA-RIV-3508-H because of the various names attributed to the property: the Strong Ranch, the Reichmuth Dairy, and Tracts 106A-D and 107 (Greenwood 1988). The subject of this investigation is located on the west side of the Pomona-Rincon Road, about 0.5 mile south of the San Bernardino-Riverside county line, as recorded in the 1979 Rosenthal and Schwartz survey.

The earliest clues to land use at CA-RIV-3508-H were offered by Christina Fear Desborough who provided the first comprehensive picture of life in the Prado Basin (1981). She identified the site area as the "First Strong Ranch," labeled No. 47A on her regional map reproduced here as Figure 2.1. She also identified the Rincon Union Congregational Church (No. 48), which was immediately adjacent to the Strong Ranch, and an area called the "Second Strong Ranch" (No. 47B), sandwiched between the church (No. 48) and the West Ranch (No. 46). It is the Slaughter/McGuire ranch (No. 41) which was located on land which the CoE would later designate as Tract 107.

According to Desborough, the First Strong Ranch was established by John Strong, who moved into the area from Nova Scotia, apparently in the late 1800s. She described his first house as "a small adobe, built in earlier days by some unknown Spaniard" (1981:Appendix 73). John and his first wife, Dolores Slaughter Strong, had two children, Mildred and Clifford. After their divorce, John Strong remarried in 1911. In that year, he built a new house on the Pomona-Rincon Road for his bride, Margaret Noble Fields Strong, the widow of Harry L. Fields. Two children from the couple's previous marriages, Clifford Strong and Eugene Fields, were still at home. At some time, Eugene and his bride, Anna Valentine, lived in the house as well (Desborough 1981:Appendix 73-73).

In 1911, Strong donated a parcel of his land to the Rincon Union Congregational Church, which was built that same year by church members under the leadership of Rev. Fenwicke Holmes. Community church services were then moved from the Pioneer School (No. 43) to the new facility, and a parsonage was built to accommodate the ministers and their families. Holmes and his mother were the first residents in the parsonage (1911-1912), followed by Rev. J. G. H. Carson and his mother in 1912. The Rev. Thomas H. Hill, his wife Gertrude, and their four children (Florence, Mary, Arthur, and Bromley) occupied the parsonage from December 1912 until 1916, and the residence was enlarged to accommodate his family. The last known occupants were Rev. August Drahms and his wife, who served the church during World War I, ca 1917-1918 (Desborough 1981:Appendix 76).

By the time of World War I, the Strong Ranch contained a home, various farm buildings, and a eucalyptus grove, and Strong was dry-farming the hills west of his house (Desborough 1981:Appendix 73). At about this time, he sold the property to the Billingsleys and moved to a new location, the Second Strong Ranch (No. 47B), located between the church (No. 48) and the West Ranch (No. 46). Harlowe Billingsley and his wife, Amy, had two children, Carolyn and Rodney. After the war, they moved away but rented the land to at least three different tenants. One may have been a Japanese family named Osaki (Desborough 1981:Appendix 74-75).

Although Desborough had moved away from the Prado Basin in the 1930s, and her information about the later years was not as securely based on direct personal knowledge, her account states that the Billingsleys sold the ranch during the 1920s, after which it passed through a succession of owners: Otto Rehmke and his family in the late 1920s, and a German-Swiss family named Richmuth in the 1930s. "According to a not-too-old-timer, who as a child, was sent to purchase milk from the dairy," the Richmuth family operated a dairy and raised

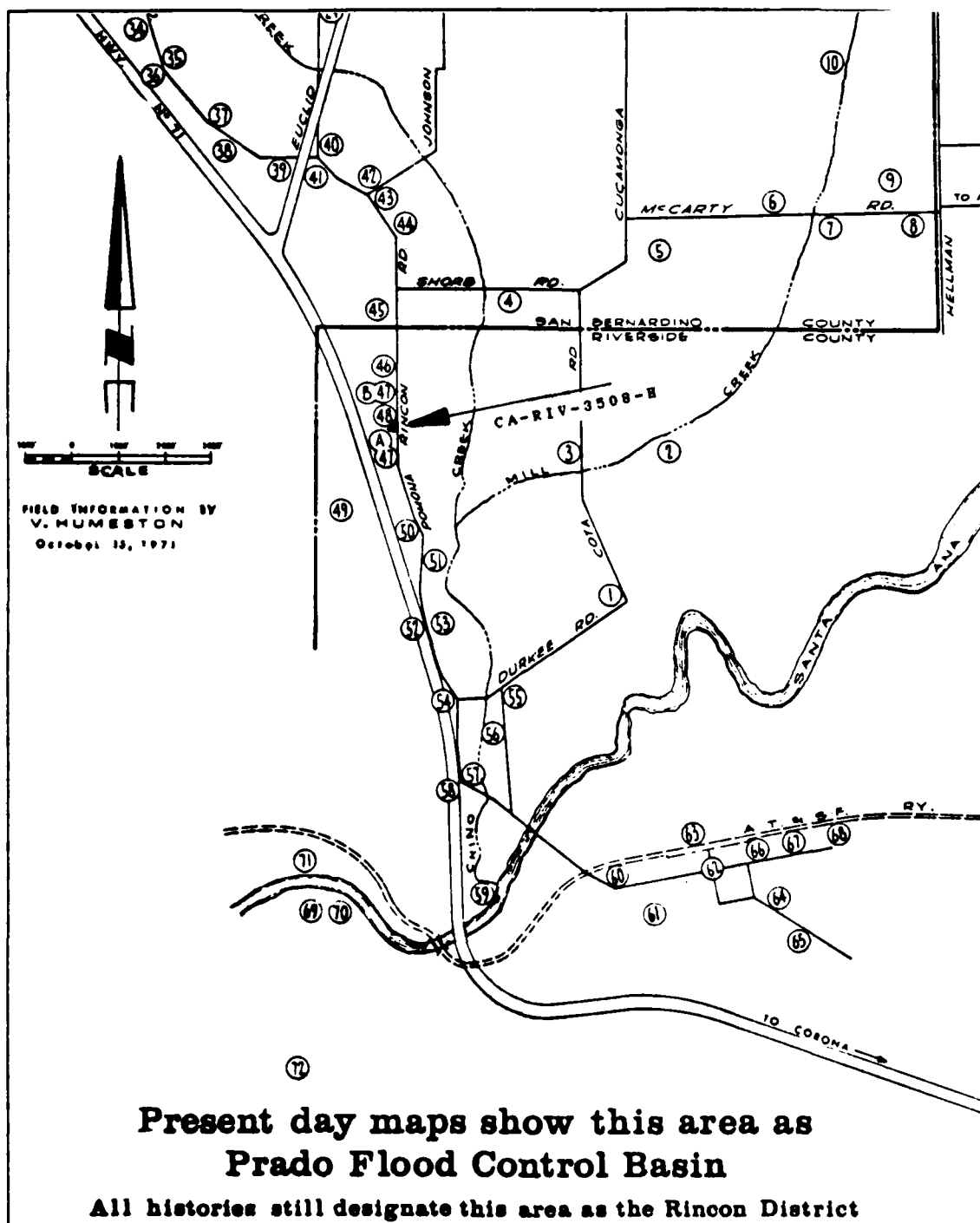


Figure 2.1. General Area Map. Showing Desborough's locations within the Prado Basin (Desborough 1981:Appendix A).

rabbits (Desborough 1981:Appendix 74-75). Subsequent research in the voluminous appraisal records compiled by the Corps of Engineers on each of the properties within the Prado Flood Control Basin corrected this family's name to Reichmuth, and demonstrated that they were situated on Tracts A-D and 107, one mile north of CA-RIV-3508-H (Swanson and Hatheway 1989:103-104).

Desborough reported that the last family to be associated with the First Strong Ranch were the Moorens and their two children, George and "Corky." They left the property just before construction of the Prado Dam (1981:Appendix 75).

Early History

Juan Lorenzo Bruno Bandini was the first rancher to acquire formally the lands that now comprise the CA-RIV-3508-H site. This was in 1839, when he was granted a large tract of land wedged between the Santa Ana River to the southeast and the Chino Hills to the west. This grant was named El Rincón, "the corner." Before Bandini received this grant from Mexican civil authorities in Los Angeles, the whole area had only been sporadically used as grazing lands by mission ranches and possibly the Yorba family, situated in the Santa Ana Canyon since 1834.

In 1838, one year before the award of El Rincón, Bandini received Rancho Jurupa, located across the Santa Ana River from what is now Riverside. This was one of the earliest grants in the entire San Bernardino Valley. Bandini was quickly attracted to the rich pasture of the Prado Basin southwest of his Jurupa grant, and applied for an extension to his grant in this direction. In 1839, he was instead awarded a separate grant to cover this area, which became known as El Rincón. Bandini preferred El Rincón to his original grant, and moved his center of operations southward, eventually awarding Jurupa to his son-in-law, Abel Stearns, and others (Greenwood, Foster, Duffield, and Elliott 1987:10; Langenwalter and Brock 1985:3.12). On the El Rincón grant, Bandini constructed a large, two-story adobe on a spur of land between Mill Creek and Chino Creek. Built in 1841, the adobe was arguably the largest ranch house in the entire valley (Gould 1948:240).

Bandini soon tired of rural life and eventually moved back to Los Angeles. He sold El Rincon and his two-story adobe to David W. Alexander in 1843 (Johnson and Buchel 1983:45). The Mexican census of 1844 noted that Alexander and seven others lived on El Rincón (Desborough c.1981:14). At that time, the ranch contained 4000 head of cattle (Greenwood, Foster, Duffield, and Elliott 1987:87). Between 1844 and 1849, El Rincón went through a number of transactions before finally becoming the property of Bernardo Yorba.

In 1850, Bernardo Yorba gave the two-story adobe to his daughter on the occasion of her wedding to Leonardo Cota (Johnson and Buchel 1983:65). The adobe then passed to the Cota family and was in their hands for most of the remainder of the nineteenth century. For many years, however, El Rincón itself belonged to Bernardo Yorba, who continued to graze cattle herds on the land (Johnson and Buchel 1983:68). Because of its long association with the Cota Family, Bandini's two-story house became known as the Bandini-Cota Adobe (CA-RIV-653-H).

Even while Bandini was building the adobe in 1840, other ranchers began to move into the San Bernardino Valley. Perhaps the greatest of these were the sons and nephew of Antonio María Lugo. The Lugo grant, known as Rancho San Bernardino, occupied the best lands along the Santa Ana River north of Rancho Jurupa. In 1841, Lugo also received the grant to Rancho Santa Ana del Chino, just north of El Rincón. Lugo passed this grant to his son-in-law, Isaac Williams, who briefly owned El Rincón before Bernardo Yorba (Langenwelter and Brock 1985:3.12). This led to a dispute years later over the ownership of El Rincón.

Bernardo Yorba's son, Raymundo, built his own adobe just west of the El Rincón Grant, at the base of the Chino Hills. Constructed between 1850 and 1853, this adobe is the second oldest construction within the Prado Basin. Years later, the adobe was bought by Fenton Slaughter, and became known as the Yorba-Slaughter Adobe, located along the old Pomona-Rincon Road about two miles north of the CA-RIV-3508-H site. This adobe was situated west of the El Rincón grant; Raymundo claimed his title by right of homestead according to the laws of the new American administration (Tobey et al. 1977:5-6). This area soon became home to others attracted to the rich land of the Prado Basin, but denied access to El Rincón by Bernardo Yorba's title to the grant.

Yorba's title was soon called into question. The Land Act of 1851 required confirmation of all Mexican land grants, and confirmation could not always be provided to satisfy an American court of law. The process of defending their grants ruined many Hispanic rancheros. With the legal system and the Anglo population influx working against them, the old ranchos began to decline and fail. Rancho El Rincón was one of these and was subject to litigation for almost 30 years.

It was in the course of confirming Bernardo Yorba's claim to El Rincón that the grant was first surveyed and mapped by Henry Hancock in 1858 (Hancock 1858a and 1858b; Figure 2.2). This had been preceded by an 1853 general survey of the exterior lines of Township 3 South, Range 7 West, also conducted by Hancock (1853). This 1853 survey, far more detailed than the survey conducted five years later, provides the first real evidence of what was present within the vicinity of the site by the mid-1800s.

When Hancock surveyed the west margins of Township 3 South, Range 7 West in 1853, there were very few residences or other structures within the area. Hancock alluded to only two: the Bandini-Cota Adobe, often used as a sighting, and a "ranchita of Yorba." Both of these structures were sighted and angled from the corner of Sections 17, 18, 19, and 20--about one mile south of what would later be CA-RIV-3508-H and almost on top of what is now the Aros-Serrano Adobe (CA-RIV-2778). The "ranch house inhabited by Senor Leonardo Cota" [Bandini-Cota Adobe] was located at North 19 degrees East from this point, while the "ranchita of Yorba" was situated South 36.5 degrees East. Unfortunately, the distance to the ranchita from the sighting point was not recorded.

As Hancock moved north along the west line of Section 17, he noted the position of Cota's house on the bluff and the "field" situated just south of the bluff (Hancock 1853). From the corner of Sections 7, 8, 17 and 18, about one-quarter mile east of the project area, Hancock noted the outline of the field

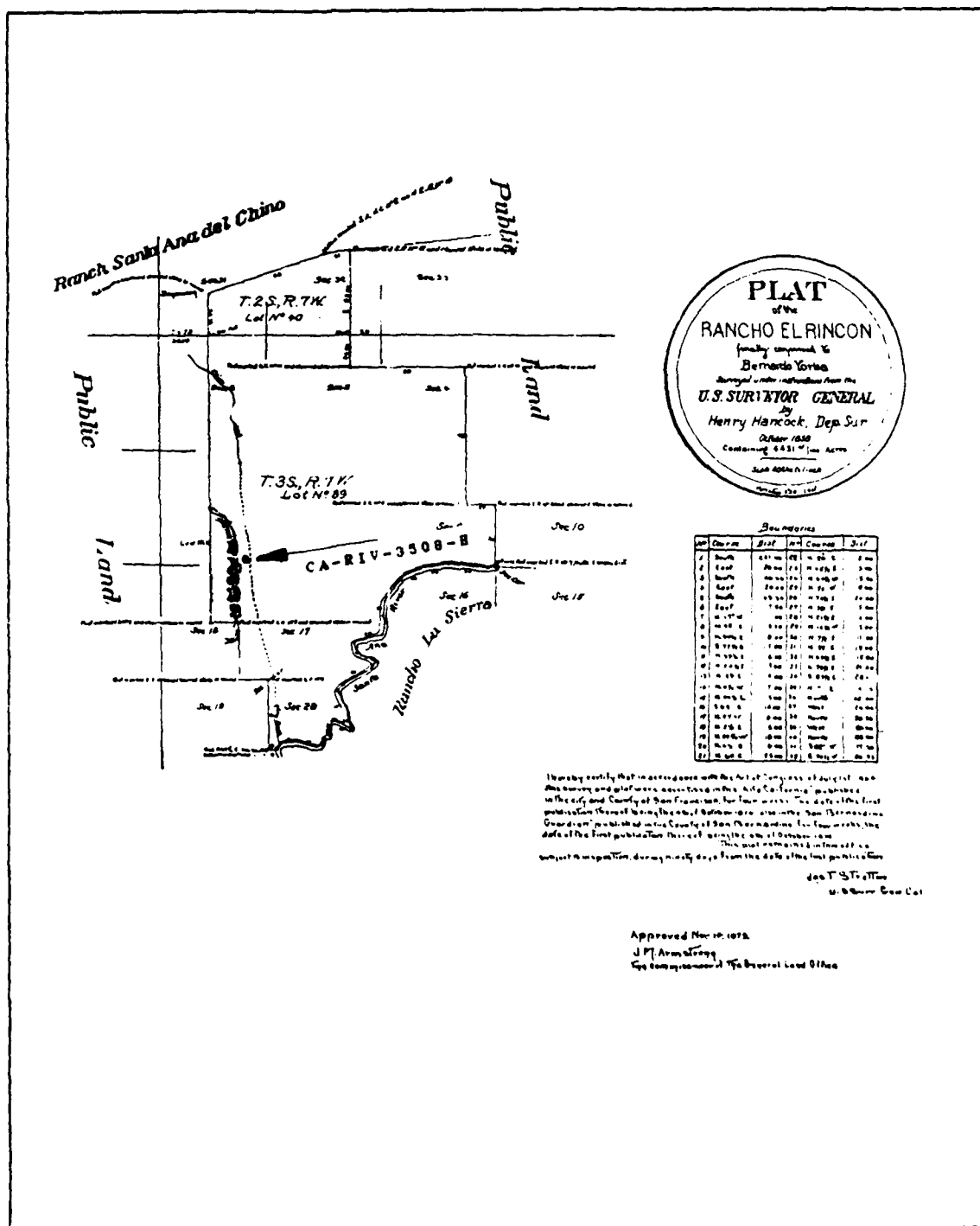


Figure 2.2. Plat of the Rancho El Rincón (Hancock 1858b).

that covered much of his view to the southeast. The "house [Bandini-Cota Adobe] could not be seen" from this point.

Coincidentally, this very field and the Bandini-Cota Adobe were surveyed in 1859, providing information used to create the two maps prepared in 1873 for a court case involving El Rincón (Hansen 1859; Figures 2.3 and 2.4).

As Hancock worked his way north along the west boundary of Section 8, he passed less than a quarter-mile east of what would later be CA-RIV-3508-H. When he was literally due east of the site, or 6 chains (396 ft) north of the corner of Sections 7, 8, 17, and 18, he passed an old zanja and a fence extending almost east-west across the bottom of Chino Creek: "from east side of bottom to branch course, South 89 East." Hancock made no mention of an adobe near the project area, which he almost surely could have seen if one had been present.

In 1853, settlement was also sparse in the area of the Yorba-Slaughter Adobe. Working west along the southern boundary of Section 6, about one mile north of the adobe, Hancock crossed a road that would later be the Rincon-Pomona Road. There was as yet no Rincon "community" immediately west of El Rincón; the only house Hancock reported was the Cota residence, still visible from the other side of Chino Creek (Hancock 1853).

Hancock surveyed the boundaries of Rancho El Rincón itself in 1858, after it was finally confirmed to Bernardo Yorba. These field notes made no mention of any habitations along the margins of the grant (Hancock 1858a), and the map generated from these notes depicts no structures whatsoever (Hancock 1858b; see Figure 2.2).

El Rincón was confirmed to Bernardo Yorba in the same year as his death, which led to additional problems with covetous neighbors. As a result of a family dispute, Francisca A. Carlisle, heiress of Isaac Williams' Rancho Chino immediately north of El Rincón, laid claim to the Yorba estate. In 1868, after a change of venue, she found a court in Santa Clara that would award her the northern half of El Rincón (Map of Rancho El Rincón 1868; Figure 2.5: note that Carlisle's name is shown as "Francisco," which is apparently in error). Most of Section 7, including the project area, was retained by the estate of Bernardo Yorba. There was still no evidence of any structures in the vicinity of CA-RIV-3508-H.

It would appear that the first groups of settlers to move into the western margin of El Rincón made their appearance in the late 1860s and early 1870s, just as the Yorba estate appeared to be breaking up. Bernardo Yorba's heirs, Ynez Yorba de Cota and her husband Leonardo Cota, were not able to stop the squatters, who may have actually been abetted by other members of the Yorba family. In 1871, Antonio Aroz (sic) moved into the area one mile south of CA-RIV-3508-H, after buying land from Teodosio Yorba, a transaction recorded in the Index to Deeds, San Bernardino County (Book K:278). Others undoubtedly followed this course of action. By 1873, land ownership within the southern half of El Rincón was confused, and this situation led directly to the court case that would finally fragment the old Mexican grant.

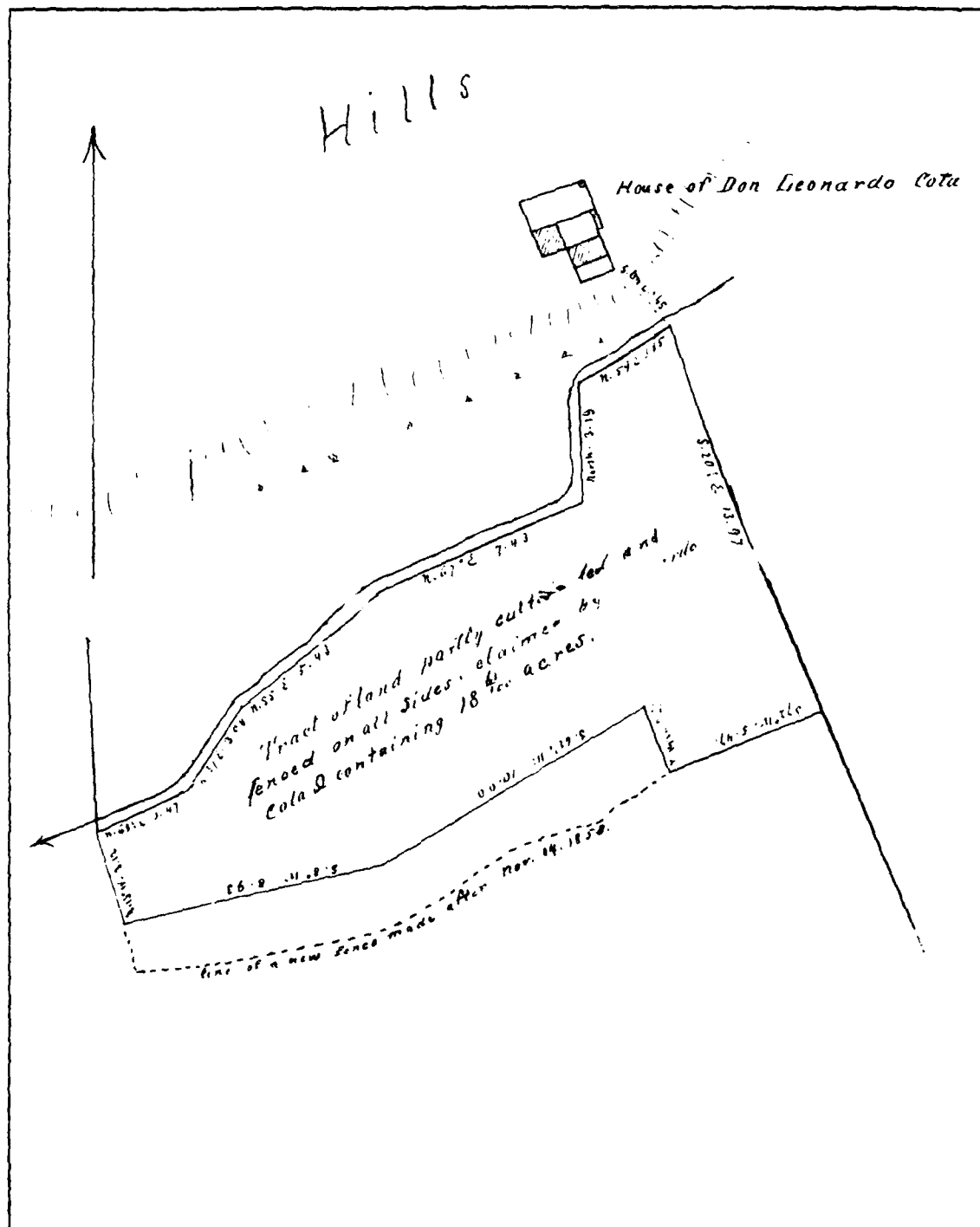


Figure 2.3. Plat of Some Tracts, Rancho El Rincón, 1858. (On file, No. 184, San Bernardino County Historical Archives, County Library Administrative Headquarters, San Bernardino.)

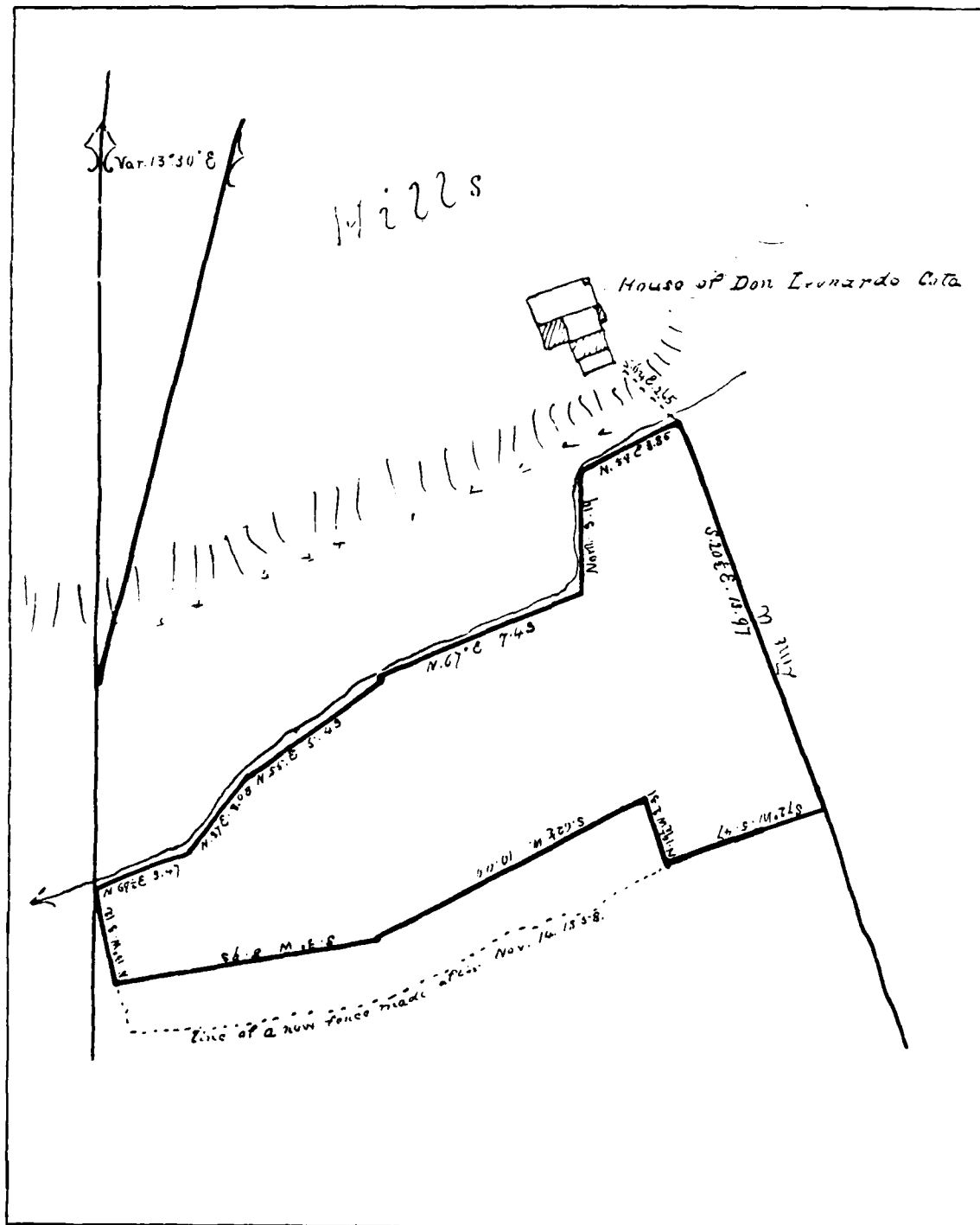


Figure 2.4. Exhibit F (Untitled Map), 1873. (Rives et al. vs. Ynez Yorba de Cota et al., File 184, San Bernardino County Historical Archives, County Library Administrative Headquarters, San Bernardino.)

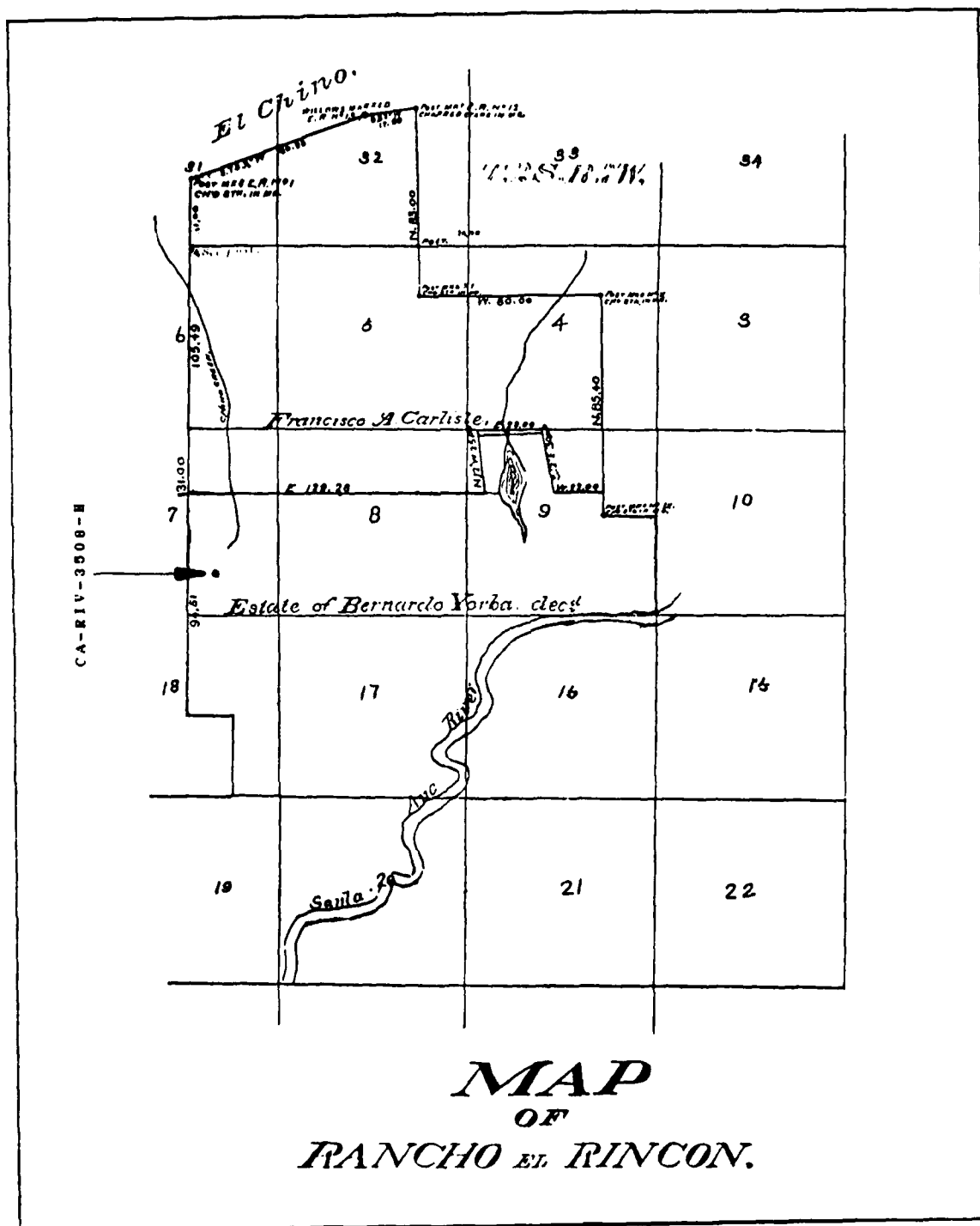


Figure 2.5. Map of Rancho El Rincón, 1868. (On file, Archaeological Information Center, San Bernardino County Museum, Redlands.)

R. W. Rives' Property, 1873-ca 1888

In 1873, the many tenants/owners located on El Rincón took Ynez Yorba de Cota and her family to court in order to legitimize their holdings. The case, which dragged on through much of that year, pitted R. W. Rives, Antonio Arros (sic), Jose Juan and Soledad Cota de Alvarado, G. W. Vine, Johann Fugua, and J. C. Hickey, plaintiffs; against Ynez Yorba de Cota, Leonardo Cota, Senobia Roland, Leonara Yorba de Roland, Thomas Roland, Prudentio Yorba, Maria Susan Shorb, J. de Barth Shorb, William McKee, Lomas Yorba, and Felipe Yorba, defendants. The case was tried in the 18th Judicial District Court of the State of California, in San Bernardino County (Rives vs. Cota 1873).

The plaintiffs wanted to partition the "southern half of Rincon Rancho," to which they felt some entitlement. According to their depositions, they were all tenants in common, including Ynez and her family. Rives himself claimed a one-fifteenth share in the south half of El Rincón; the other plaintiffs claimed similar figures. Rives in particular was very active in the case, and was in fact the principal party in the action against the defendants. He even delivered the summons for the plaintiffs and the court (Rives vs. Cota 1873).

In the end, the land was subdivided according to the wishes of the plaintiffs, in large part because the defendants did not appear as directed by the court to answer the charges. F. M. Slaughter, F. M. Wood, and Cornelius Jensen were appointed referees for the division, which was duly carried out before the end of 1873 (Figure 2.6). Rives received his part of El Rincón, which included the project area, by decree entered on November 21, 1873 in Book A, page 240 of Judgements, records of the District Court of San Bernardino (Strong to Billingsley 1917).

The Rives property comprised a total of 142.68 acres, bounded as follows: beginning in the southwest corner of the land of George Vine, whose property was located immediately to the north, proceed east 52 chains (3432 ft), then south 27 chains, 44 links (1811 ft), west 50 chains (3300 ft) to a post marking the old boundary of El Rincón, and then north 27 chains (1782 ft) to the beginning (Rives vs. Cota 1873). The site was located in the southwest corner of Rives property. The land to the east and south of Rives remained in the possession of Ynez Yorba de Cota. This land formed a sort of buffer between Rives and George Vine in the north, and Alvarado and Antonio Aros to the south.

The last General Land Office survey of Township 3 South, Range 7 West was conducted by John Goldsworthy in 1875. By then, there were a number of structures identified in the surveyor's notes, many of which found their way into the official GLO survey map of the township (Goldsworthy 1875; Township 3 South, Range 7 West 1853-75; Figure 2.7). More than once, Goldsworthy crossed the "Chino-Temescal Road," now the Pomona-Rincon Road. Going east on the line between Sections 6 and 7, he could see structures immediately to the north which he took pains to identify: Goldsmith's house, Goldsmith's store, and Yount's house. He could even see the house of Fowler and Gates, located on the other side of Chino Creek (Goldsworthy 1875). At 36.7 chains (2422 ft) from the beginning of the line, Goldsworthy intersected the old border of Rancho El Rincón. From this point, he could see the house of a George Wood, angled South 4 degrees West, about 18 chains (1188 ft) away. This house was located just

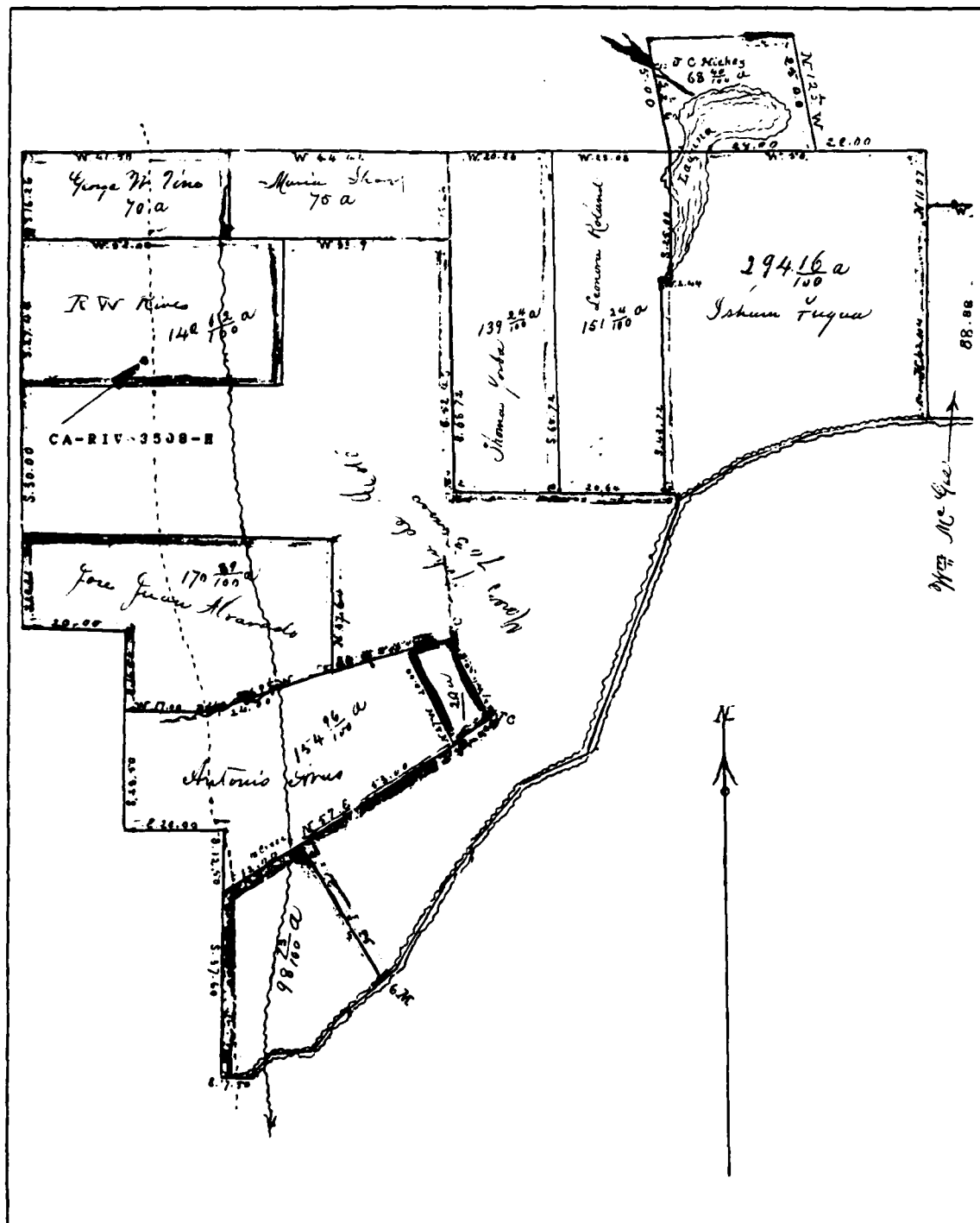


Figure 2.6. Plat, South Part of Rancho El Rincón, 1873. (On file, No. 184, San Bernardino County Historical Archives, County Library Administrative Headquarters, San Bernardino.)

west of the old El Rincón line and about 0.75 mile north-northwest of the project area. Wood's house is the closest residence noted to what is now the area of CA-RIV-3508-H.

Goldsworthy retraced the west line of El Rincón and noted one of Cota's sheep camps some 2000 feet southwest of the project area. This portion of the survey was as close as Goldsworthy got to the site, and he made no mention of any structures on the Rives property. Farther south, Goldsworthy noted the adobe of Antonio Aros and talked with both Aros and Alvarado, who told the surveyor that they were "part owners in the Rancho El Rincón and were present at the time of the final survey" (Goldsworthy 1875). There is no indication that Goldsworthy ever encountered Rives.

Goldsworthy, who kept voluminous notes on just about everything he found, never once mentioned Rives or any structures on the Rives property. While certainly not conclusive, this would suggest that Rives did not actually live on his property. Up to this point, there is absolutely no indication that there was ever any kind of structure in the immediate vicinity of the CA-RIV-3508-H site. This is certainly not contradicted by an 1878 map of the township, which was the last made of this area for the General Land Office (Minto 1878; Figure 2.8).

It is not known exactly when Rives sold his property. An Abstract of Title of Rancho El Rincón, prepared in 1887, shows that Rives still owned the property in that year (Desborough 1981:158). It was probably the following year when the land was sold to the Pasadena Rincon Land and Water Company, for by 1889 this corporation was already contemplating selling the land they had just bought (Pasadena Rincon to Harwood 1890).

Pasadena Rincon Land and Water Company, ca 1888-1890

The Pasadena Rincon Land and Water Company probably purchased the Rives property in 1888, even though the deed of sale has not been recovered. The company, based in Pasadena, was very active in San Bernardino County, purchasing many tracts between the years 1887 and 1889, as indicated in the Index to Deeds, Book 4, Grantee, San Bernardino County. Undoubtedly the Rives property was just one part of a massive land speculation scheme, which itself was part of the Land Boom of the late 1880s in southern California. When the bubble burst, the company wasted no time liquidating the property. The sale of the old Rives land was commissioned by an act of the board in 1889, and it was finally sold to Charles Harwood in 1890 for the sum of 350 dollars. The area sold to Harwood was exactly the same as that awarded to Rives: from the southwest corner of George Vine's lands, east 52 chains, south 27 chains, 44 links, west 52 chains to post, north 27 chains, 44 links to the beginning--a total of 142.68 acres (Pasadena Rincon to Harwood 1890).

Charles E. Harwood, 1890-1898

Charles E. Harwood and his wife, Kate, owned the project area for eight years, but it appears that they never lived on it; at the time the property was

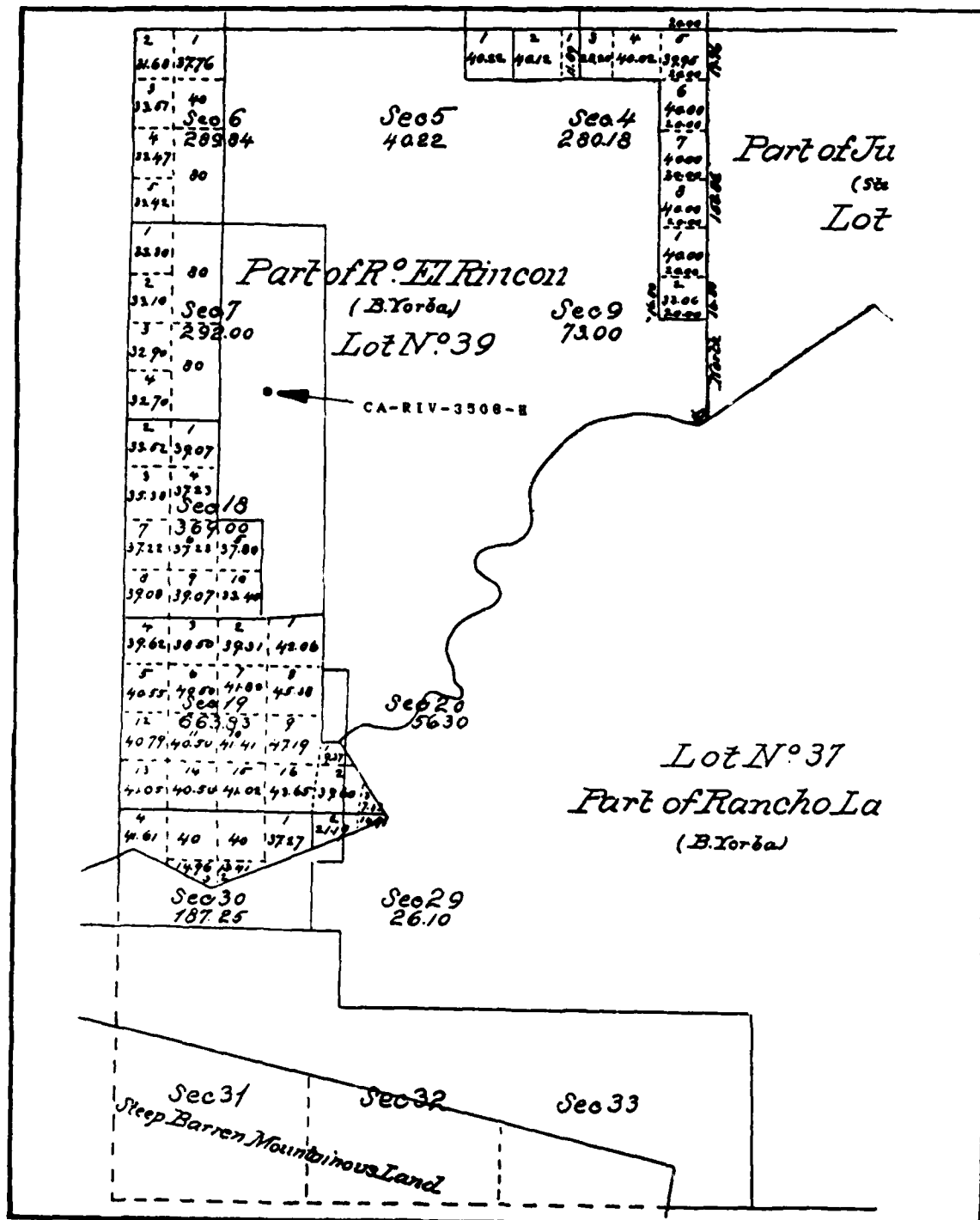


Figure 2.8. Township 3S, Range 7W, 1878. (GLO Plat Map. On file, Public Room, Bureau of Land Management, Riverside.)

sold again in 1898, the Harwoods listed their residence in the Ontario Colony, in San Bernardino County (Harwood to Strong 1898). By then the project area had been transferred to Riverside County, which was separated from San Bernardino in 1893.

Harwood sold the southwest portion of the original Rives property to John E. Strong in 1898 for \$1650. The project area was included within this transaction. The property sold was identified in the following manner: beginning in the southwest corner of the tract in Rincon Rancho conveyed to Charles Harwood by Pasadena Rincon Land and Water Company, east 1738 ft, north 904 ft, west 1738 ft, and south 904 ft to the beginning. By the terms of the 1898 sale, Strong was to assume responsibility for all taxes levied on the property since 1891 (Harwood to Strong 1898).

The area sold was a perfect rectangle, and included lands that would later be alienated to form the Rincon Union Congregational Church grounds and the Second Strong Ranch, both situated in the northeast corner of this parcel of land.

It seems unlikely that Harwood lived on this property, but he may have had renters who did. The first USGS map of the area, the Corona 30-minute quad, printed in 1902 but surveyed in 1894 and 1899, shows a structure within the general vicinity of the CA-RIV-3508-H site. It was situated on the west side of the Pomona-Rincon Road, immediately adjacent to the road (Corona USGS Map 1902). Whether this structure was built by Harwood (1894) or by the subsequent owner, Strong (1899), cannot at this time be determined.

The Strong Ranch, 1898-1917

According to Desborough (1981:Appendix 73-74), when John Strong bought this property, he was still married to his first wife, Dolores Slaughter Strong. Desborough implied that they lived on the property. It is possible, however, that the first house they lived in, the "adobe built by some unknown Spaniard," was located elsewhere. It is known that the Strongs had other local properties in addition to this one, and there is no indication of an old adobe on this tract of land. If they lived on the property before 1911, the house they lived in did not survive long enough to be recorded in the notes of the ca 1940 appraisal reports now stored by the Los Angeles District, U.S. Army Corps of Engineers.

In 1911, after Strong divorced his first wife and married the widow of Harry L. Fields, he constructed a house for his new family. The date for this construction, provided by Desborough (1981:Appendix 73-74), agrees with dates provided in the CoE appraisal reports. In fact, the two oldest structures noted in the 1941 appraisal were built in 1911: the ranch house and the horse barn. Although both were described for the first time in 1936 and 1941, years after they were built, it is clear that they had not been substantially altered since their construction.

The 1936 appraisal report, prepared for the Orange County Flood Control District and acquired by the CoE, described the 1911 house as 30 by 36 ft, of

"rustic" construction (presumably wood), one story high, and resting on a concrete foundation. The house had six rooms, covered by a shingle roof. This description essentially agrees with that provided by the 1941 appraisal report, except that here the house dimensions are given as 42 by 42 ft. The discrepancy may be explained by the possible presence of porches not counted in the first appraisal, but counted in the second (Billingsley Tract ca 1940).

The barn, also built in 1911, was identified in the 1936 appraisal report as 33 by 45 ft, with exterior walls of one-inch siding. The barn consisted of one room, one story. The foundation was concrete and brick; the roof, shingle. The same building was described in 1941 as 40 by 45 ft, constructed of vertical board; otherwise the description was identical (Billingsley Tract ca 1940).

In 1911, the year he constructed his new house, Strong gave one acre of his land to the Rincon Union Congregational Church for one dollar. The area deeded to the church was described as follows: on the road between Pomona and Rincon, beginning at a point 500 ft north of the southeast border of Strong's land conveyed to him by Harwood, north 210 ft along the road, west 210 ft, south 210 ft, and east 210 ft, a perfect square. There were three conditions to this deed: 1) a building had to be constructed on the premises for Christian worship; 2) the land could not be sold or used for any other purpose; and 3) if conditions 1 and 2 were not met, the property would revert back to the original owner (Strong to Union Congregational Church 1911).

According to Desborough (1981:Appendix 76), the church was built by the members themselves in 1911. In that same year, a parsonage was also built on the property. Desborough does not mention what became of the church or the parsonage after about 1918. Langenwaller and Brock (1985:8.51-52) suggest that the buildings were torn down in the mid-1920s.

In 1917, Strong constructed a new ranch house (Desborough's Second Strong Ranch) for his family on the one-acre parcel of land north of the church grounds. This acre was alienated from the rest of his original tract, which he then sold to Harlowe Billingsley for the sum of ten dollars. The grounds sold to Billingsley are described as follows: starting in the southwest corner of land allotted to R. W. Rives and Charles Harwood, east 1738 ft, north 500 ft, west 210 ft, north 404 ft, west 1528 ft, and south 904 ft to the beginning (Strong to Billingsley 1917). These dimensions correspond to the Billingsley Tract identified in the CoE land records as Tract 162 (Figure 2.9). CA-RIV-3508-H is situated on this parcel.

Billingsley Tract, 1917-1942

The 34-acre Billingsley Tract remained an intact parcel of land from the time of its 1917 purchase to its final acquisition by the Federal government. It was Harlowe R. Billingsley who established a dairy at the CA-RIV-3508-H site, a dairy first organized in the 1920s. To the house and horse barn built by the Strong in 1911, the Billingsleys added a milking barn around 1926, a garage around 1931, a "modern" milk house around 1936, and a poultry house and tank house at some unknown point in time (Billingsley Tract ca 1940: 1936 and 1941 Appraisals).

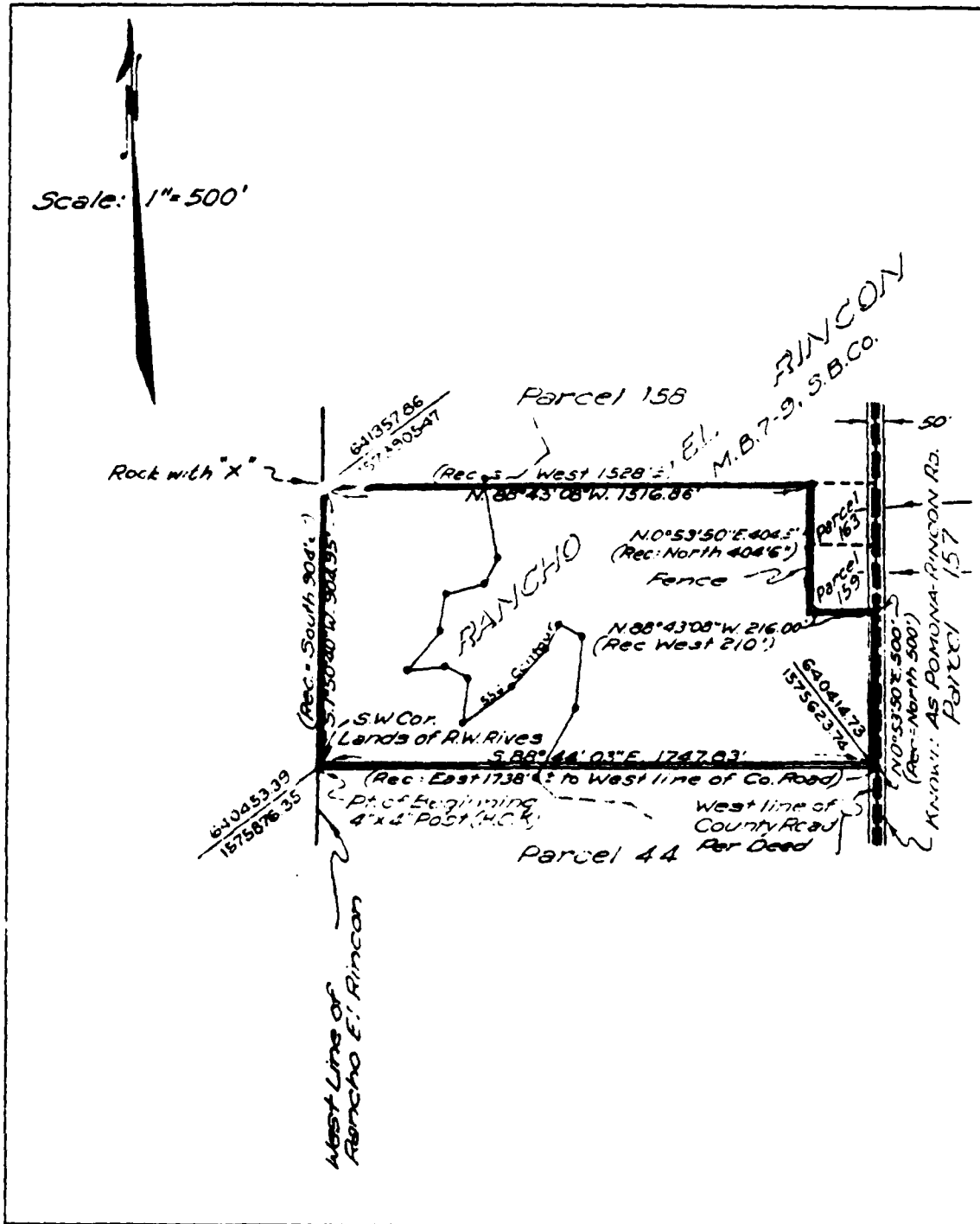


Figure 2.9. Billingsley Tract ca 1940. (On file, Real Estate Records Unit, Los Angeles District, U.S. Army Corps of Engineers.)

Some of these later additions to the property may have been added by tenants, since the Billingsleys moved away sometime in the 1920s. Nonetheless, it is clear that the Billingsleys remained the owners of the property until it was sold to the Orange County Flood Control District in 1938. Desborough was mistaken when she claimed that the tract was sold to a succession of owners during the 1930s, although she might not necessarily be wrong in assuming that they were present on the grounds. They may have been renters.

According to Desborough (1981:Appendix 74), the Billingsleys rented their property three times before finally selling it. One of the renters may have been a Japanese family named Osaki. Afterwards, Desborough claimed that the Rehmkes, the Richmuths/Reichmuths, and the Moorens were serial owners before the land was incorporated into the Prado Flood Control Basin. While it is certain that none of these people actually owned the land, some--maybe all--lived on the grounds at one time or another. Otto Rehmke ended up buying Tract 160 immediately southeast of the Billingsley Tract (Rehmke Tract ca 1940); in 1936, Joseph and Marie Reichmuth bought Tracts 106A-D and 107, one mile to the north (Reichmuth Tracts ca 1940). Both may have worked the Billingsley dairy as tenants before advancing to their own operations. The 1936 appraisal report on the Billingsley Tract definitely identified "S. Moorens" as the tenant operating the 60-cow Billingsley dairy. He continued as a renter under the Orange County Flood Control District, paying \$480 a year (Billingsley Tract ca 1940).

The appraisal reports on file with the CoE, spanning a period between 1936 and 1941, document a dairy in rapid decline as the tract was being maneuvered into the Prado Flood Control Basin. What had been a 60-cow, feed lot dairy farm in 1936, was marked by old alfalfa and grain hay fields in 1938. There does not appear to have been much damage from the 1938 flood, but many improvements to the property were reportedly removed by the Orange County Flood Control District after 1938 (Billingsley Tract ca 1940). By the time of the 1942 appraisal for the CoE, the buildings had been removed, and the dairy was marked by a well, a series of eucalyptus trees planted near the road as windbreaks, and six head of cattle (Billingsley Tract ca 1940).

It is not clear when the buildings were torn down. One report suggests that it was done shortly after the Orange County Flood Control District obtained the property in 1938. Alternatively, the 1941 appraisal lists the same buildings first reported in 1936, with some differences in description, suggesting that it was not merely a copy of the 1936 appraisal. It seems likely, therefore, that the dairy improvements were removed from the tract sometime between the February 1941 appraisal and the final appraisal dated to April 1942. This would explain the absence of a ground plan map; such maps were prepared for other dairies in the Prado Basin.

Both the 1936 and 1941 appraisals essentially agree on the nature and number of structures associated with the Billingsley dairy. All of these structures are listed in Table 2.1 with their estimated date of construction. With the exception of the house and the horse barn built by the Strongs, all of these constructions were built by the Billingsleys or their tenants.

Table 2.1 - Billingsley Dairy Structures

	Date Built	Size in feet	
		1936	1941
House	1911	30x36	42x42
Horse barn	1911	33x45	40x45
Milking barn	1926	16x75	20x78
Garage	1931	16x20	16x24
Milk house	1936	10x16	9x15
Poultry shed	no date given	6x10	6x8
Tank house	no date given	9x9	10x10
Well	no date given		
Windmill	no date given		

The dimensions of the milking barn are variously given as 16 by 75 ft (1936 appraisal) and 20 by 78 ft (1941 appraisal). Otherwise, the descriptions of this construction essentially agree. The milking barn consisted of one story and had one room, the walls formed by one-inch siding. The foundation was concrete. The roof was shingle and galvanized iron in 1936, but was simply noted as galvanized iron in 1941 (Billingsley Tract ca 1940).

The garage, described as 16 by 20 ft in 1936 and 16 by 24 ft in 1941, had walls that were variously described as one-inch siding or board and batten. The garage was one story and had two rooms, covered by a roof of galvanized iron. There is some discrepancy about the foundation: the 1936 appraisal indicates that it was concrete; the 1941 appraisal lists it as wood sill (Billingsley Tract ca 1940).

The milk house (labeled "milk house and cooler" in the 1936 appraisal) was one of the most recent constructions on the dairy. Its dimensions were given as 10 by 16 ft in 1936, and 9 by 15 ft in 1941. The milk house had one story, consisting of two rooms. The walls were of tongue-and-groove frame construction, covered by a galvanized iron roof. The foundation was concrete.

The poultry shed, 6 by 10 ft (1936) or 6 by 8 ft (1941), was constructed of cheap frame materials, described as vertical board construction in 1941. The shed had one story and one room. The roof was galvanized iron, and the foundation was wood sill.

The tank house, where the local water supply was stored, was variously described as 9 by 9 ft (1936) or 10 by 10 by 10 ft (1941). It had one story and one room. The walls of the tank house were one-inch siding and the foundation was concrete. The tin roof noted in 1936 was missing altogether by 1941.

The water for the tank house was provided by a well, with water drawn by windmill. The 1936 appraisal mentions a 4000-gallon wood stave tank and a 500-

gallon metal tank, both of which were apparently located in the tank house. The 1936 appraisal noted that the water was for domestic and dairy use; there was no irrigation development on the Billingsley tract (Billingsley Tract ca 1940).

Acquisition for Flood Control

The appraisal reports began the process by which the Billingsley property was incorporated into the much larger Prado Flood Control Basin. Planning for the Prado Dam began under the auspices of the Orange County Flood Control District in the 1930s. Construction was finally assumed and completed by the U.S. Army Corps of Engineers in the early 1940s.

The Orange County Flood Control District (OCFCD) was created by the California legislature in 1927, and was empowered to regulate water sources for Orange County, even those originating outside of the county. An essential element of the charter was flood protection, especially in the Santa Ana River basin (Beard 1941).

Little was done about flood control until the passage of a 1936 Act of Congress which authorized the Federal government to cooperate with state and local agencies in the work of flood protection. By the terms of this act, no Federal money could be spent until local agencies provided the government with all the necessary lands, easements, and rights-of-way. This spurred the OCFCD to begin the process of land acquisition in the Prado Basin in preparation for dam construction at the northern end of the Santa Ana Canyon. The OCFCD obtained the services of three Federal Land Bank appraisers from Berkeley to conduct the initial appraisal of all properties within the limits of the future flood basin. This work was carried out between June and December of 1936 (Beard 1941).

The creation of a flood control basin was fiercely opposed by most local residents, who did not sell their land until forced to by the Federal government. Harlowe Billingsley, however, was an absentee landlord with little attachment to his property. He sold the Billingsley Tract to the OCFCD in 1938 for \$7300 (Billingsley to OCFCD 1938). This occurred almost immediately after the devastating 1938 flood that destroyed many of the farm operations within the Prado Basin. The flood eased acquisition of basin lands.

By 1939, Federal authorities began considering direct acquisition of lands within the Prado Basin. By this point the local situation had changed greatly. Much of the basin was abandoned, and acquisition was no longer so fiercely contested (Beard 1941). By 1941, the U.S. Army Corps of Engineers was sending its own appraisers into the area, and the land was bought thereafter at a rapid pace. The Billingsley Tract was purchased by the Federal government in 1942, after paying \$6860 to the Orange County Flood Control District (Billingsley Tract ca 1940). It remains to this day a part of the Prado Flood Control Basin.

The project area is currently used for bird dog training under the auspices of San Bernardino County. Although the area is open all week except Mondays, the heaviest use is on weekends. The facility manager and staff regularly

28

cultivate and plant portions of the property with annuals for cover and forage favorable to game birds.

3. FIELD METHODS

Field

A surface reconnaissance prior to the first day of excavation revealed a previously unrecorded structure foundation (Structure 8; Figure 3.1). Because all but one structure were represented only by foundation remains, the crew was divided into teams of two and each team was assigned to a structure for preliminary clearing and definition. This procedure led to the identification of two important features (Features 2 and 5) during the initial stages of fieldwork. An additional team was assigned the task of walking transects over the entire site complex with a metal detector designed for locating underground pipes. Each positive indication was briefly investigated and flagged for further examination. All of the shovel test pits were based on the results of this portion of the investigation. The information gathered during this initial phase provided a basis for allocating time and personnel equitably during the remainder of the study.

Each structure was treated as a single location. Provenience of surface materials was maintained at each structure by arbitrary divisions (e.g. north end of west wall, southeast corner, etc.). Features were numbered consecutively in the order designated. Those features which occur within structures are described following the appropriate structure description. When it was determined that Structure 6 was clearly two structures from different temporal periods, a second designation was assigned to the northern structure (Structure 9).

Two standard 1 x 1 meter excavation units (Units 1 and 2) were arbitrarily placed within Structure 2 to ascertain whether cultural materials had accumulated in the crawl space. Exploratory trenches were also excavated along the interior of the foundation walls to discover potential interior foundation walls; none were found. An insufficient amount of material was recovered to warrant further excavation within the foundation. Several locations were identified with the metal detector near the northwest corner of Structure 2. A block of units (Units 3-10; Figure 3.2) was laid out encompassing a concentration of those locations. They were excavated in arbitrary 10-centimeter levels until it became apparent that no potential temporal distinctions were reflected by the artifacts. Arbitrary levels of 20 centimeters were used thereafter to maximize recovery. The block was expanded with the addition of Units 11-24 to include additional materials and complete exposure of a disintegrating concrete surface adjacent to an apparent doorway in Structure 2.

Materials recovered from Feature 5 (the cellar within Structure 2) were distinguished as to location within the stairwell or the cellar proper. By the

KEY TO FIGURE 3.1Structures

S-1	Well
S-2	Strong House
S-3	Garage
S-4	Tank House
S-5	Milk House
S-6	Horse Barn
S-8	Water Tank Foundation
S-9	Milking Barn

Features

F-1	Water Supply Valve and Junction
F-2	Brick-lined Pit
F-3	Holding Pen
F-4	Refuse Concentration
F-5	Cellar and Stairwell
F-6	Displaced Stanchion
F-7	Leaching Pit (?)

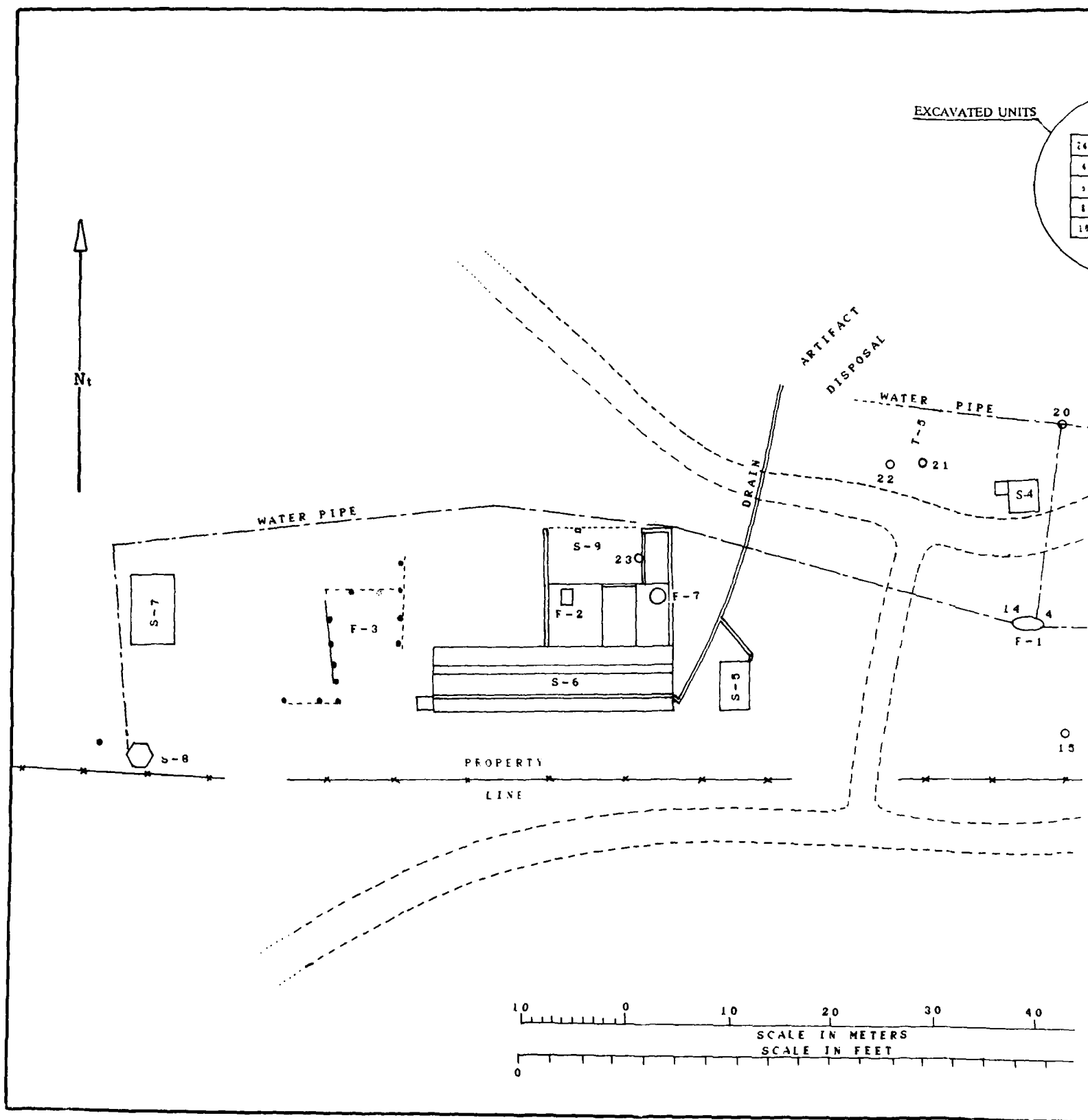
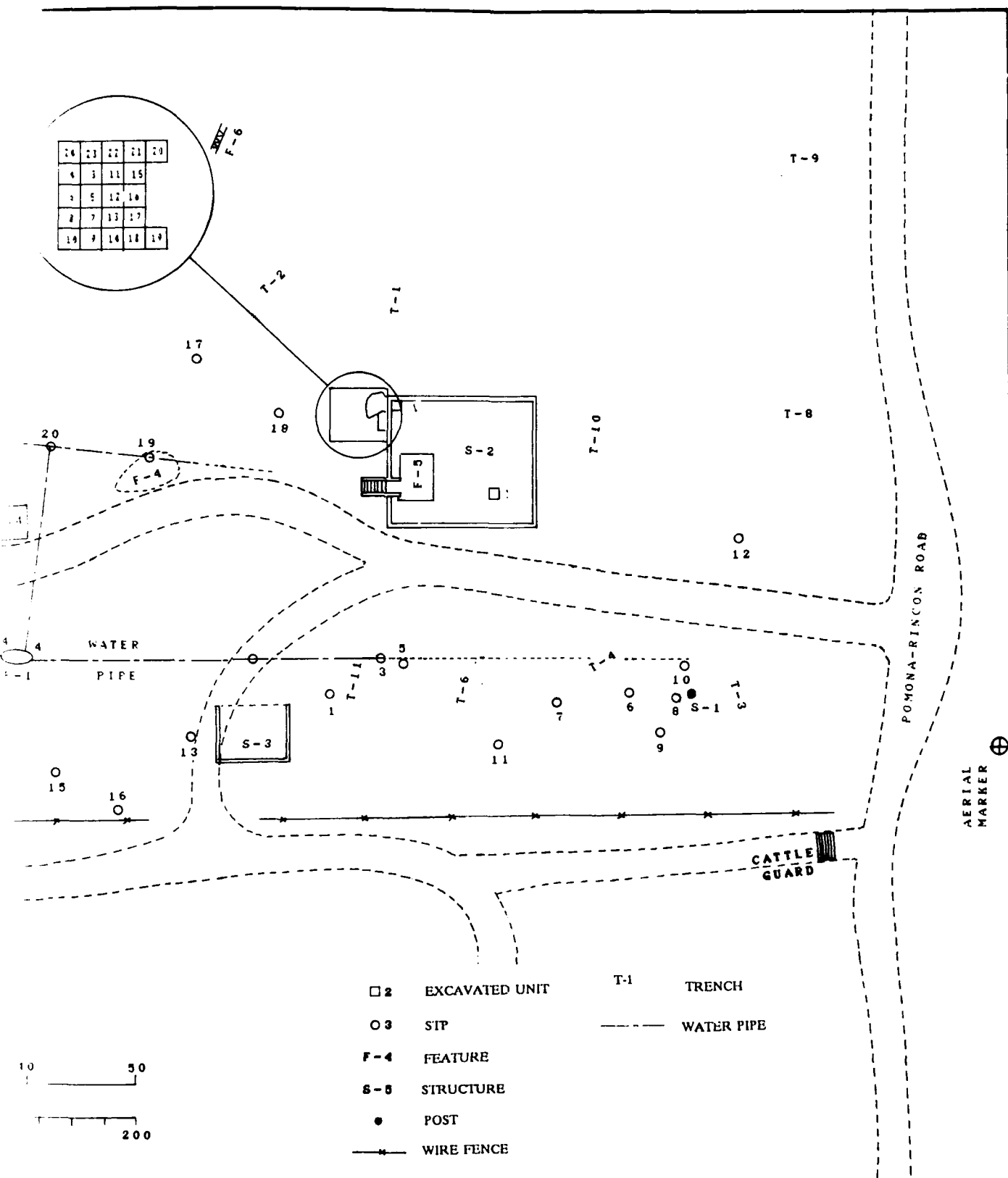


Figure 3.1. Site Map, CA-RIV-350



IV-3508-H (Billingsley Dairy).



Figure 3.2. Exposure Block, northwest corner of Structure 2, looking North-northwest.

end of the fieldwork it was apparent that the entire deposit within Feature 5 resulted from a single episode of secondary deposition, largely accomplished with materials from Feature 4.

The shovel test units were excavated in approximate 10-centimeter levels, 40 centimeters in diameter, at locations previously identified during transects with the metal detector. Several of these units revealed the iron pipe water distribution system. Layout of the water system was further defined with the use of the metal detector and a soil probe; exploratory shovel tests were conducted at subjective intervals to confirm the presence and identification of the pipes. The easternmost portion of the main line was no longer present but was projected to the well (Structure 1) on the basis of location, direction, and the presence of identical pipe line fragments on the surface in the vicinity of Structure 1.

Exploratory exposures were made at all foundations to determine relevant architectural features and construction methods. The drain from Structures 5 and 6 was traced with a soil probe and the use of shovel tests for confirmation. During the second week of excavation a backhoe was used to excavate exploratory trenches. The trenches were used primarily to ascertain whether there are any remains of an adobe which may have been located on the property. Pollen samples were taken from each of the perceived stratigraphic levels of Trench 10 (at the center of the trench). Samples were also recovered from beneath the floor of

Feature 5 (within Structure 2). A report of palynological findings appears as Appendix A.

Laboratory

It was recognized almost immediately that the bulk of historical materials, surface provenience, mixing of artifacts during demolition and land clearing, and their comparatively recent age negated the need to catalogue and curate every item. The field laboratory, therefore, sorted all cultural material concurrently with the excavation and was able to provide feedback for the interpretation of the physical remains being exposed. Amorphous metals beyond hope of identification and glass and ceramics were quantified by type, recorded, and discarded. All cultural material not retained was buried in the location depicted on Figure 3.1. Marked and otherwise diagnostic artifacts were retained, catalogued, and removed for further study.

Ceramics were identified by material type, vessel form, method of decoration, pattern identification when possible, and manufacturer identification marks. Glass bottle recordation used similar categories; glass color, bottle shape, manufacturing method(s), identification of product, bottler, and manufacturer marks. Recordation of other items included item identification, material, dimension(s) (nominal if appropriate), and any identification marks. Like items from a single provenience were batched as a single catalog number and the quantity noted. Similar attributes were recorded for all discarded items on forms designed for the purpose.

Preliminary sorting and cataloging was accomplished in the field during the first week. Wet weather hindered this procedure during the second week as washed materials were slow to dry even though protection was provided. A procedure was established to record the discard material first in order to remove a minimal quantity of material from the site. Approximately five standard letter file boxes of discard material were removed from the site. This material consisted primarily of amorphous sheet metal, pipe fragments, and building material samples. Following examination and recordation these materials were discarded at the San Joaquin County landfill.

4. STRUCTURES

Structure 1 (Well)

An iron well casing, 12 inches in diameter with 3/16 inch thick walls was visible on the surface at this location (Figures 4.1 and 4.2). There are three angle iron supports approximately four feet in length set around the well casing in an approximately equilateral triangle, the sides of which average 9 feet in length. These are largely buried, with the ends set in concrete, at an approximate angle of 10 degrees from vertical leaning toward the central well casing. The angle iron supports measure 2 1/2 by 2 1/2 inches and were manufactured with an angle of 60 degrees rather than the usual 90 degrees, apparently to accommodate a triangular structure (tower). A tower anchored to these points and following the same average angle of inclination would have been 20 to 25 feet in height, probably adequate to support a wind-powered pump at this location prior to the introduction of the surrounding eucalyptus grove. A triangular windmill tower was also found a short distance to the south at the Aros-Serrano Adobe, CA-RIV-2778-H (Greenwood, Foster, and Duffield 1987:39, 40).

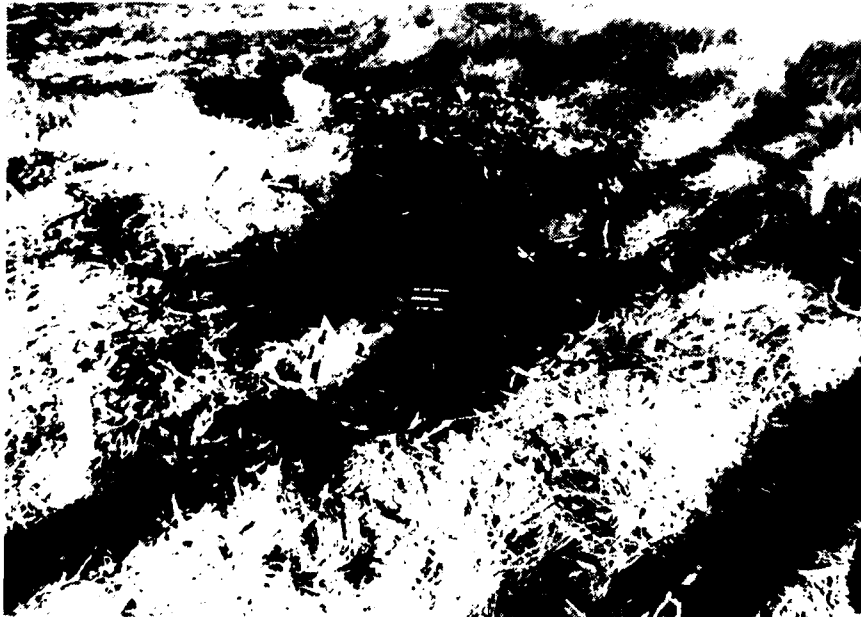


Figure 4.1. Structure 1 (well), facing north.

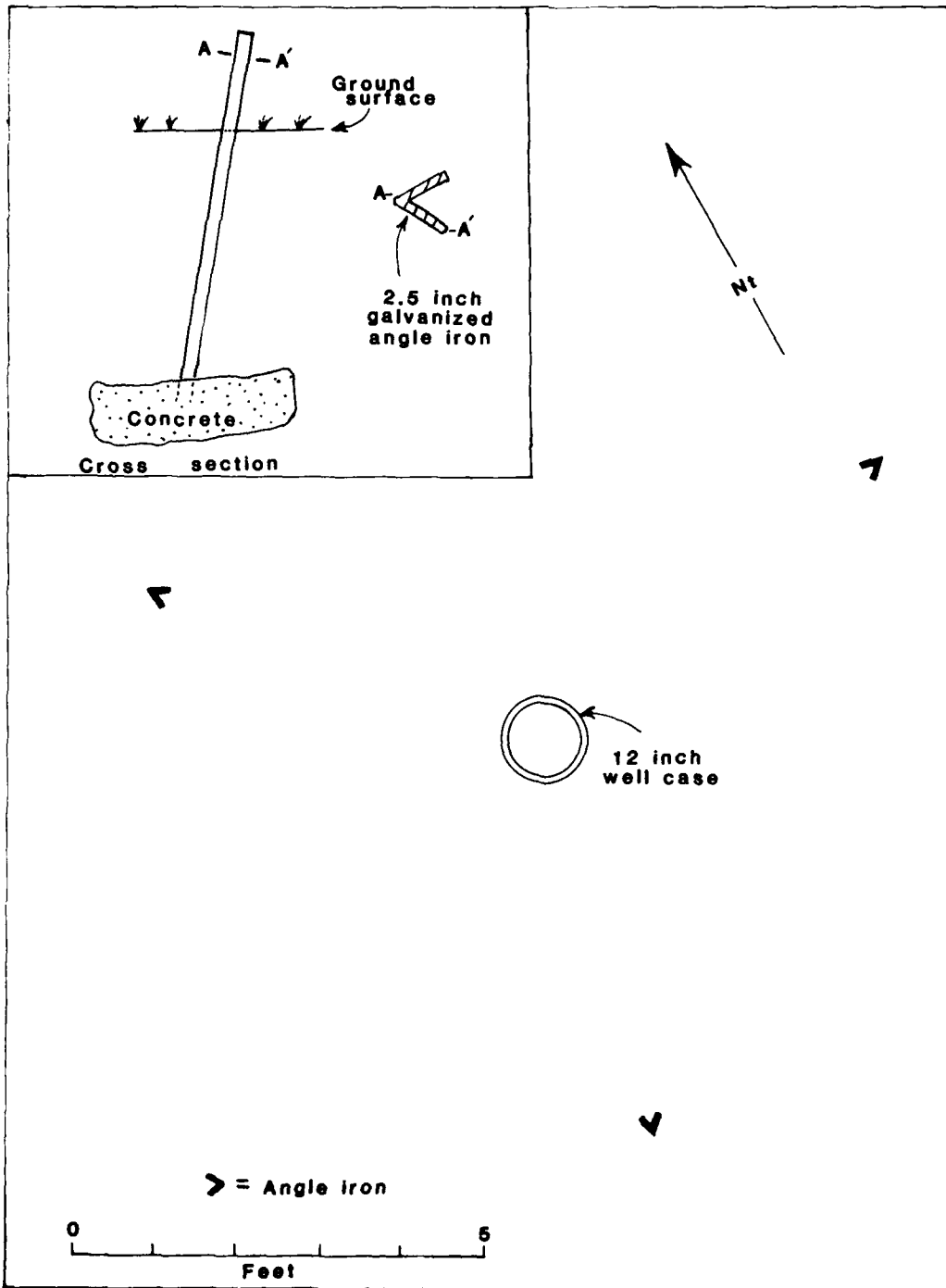


Figure 4.2. Structure 1 (Well) map.

Although less common than four-legged towers, a local resident (L. Lillibridge, personal communication 1989) reported that triangular windmill towers were locally popular during the early years of widespread wind power usage. No description of the well was provided in either the 1936 or the 1941 appraisal reports beyond the fact of its existence. No date was given or otherwise obtained for the establishment of the well. Photographic evidence suggested that a triangular windmill tower at the Aros-Serrano Adobe, 2200 meters (1.35 miles) south on the Pomona-Rincon Road, had been installed by 1911 to service a well drilled in 1908 (Greenwood, Foster, and Duffield 1987:22, 29). A 1911 date of construction for Structures 2 and 9 appears to be well confirmed (Chapter 2). Establishment of site occupation would require a convenient water source. The relatively unusual windmill tower technology used at this site and the Aros-Serrano suggests that initial use was contemporary. The well site was probably established at the same time as Structures 2 and 9 (1911). A eucalyptus grove was planted along the road(s) adjacent to the windmill tower/well by World War I (Chapter 2). The quick-growing eucalyptus trees would have interfered with the windmill operation within a few years, making it necessary to provide another source of energy for pumping. The necessary power could have been supplied by either an electrical motor or gasoline engine. It is likely that the windmill tower was removed at or shortly after this change was accomplished. The well may also have been improved at that time; no evidence was found to either support or disprove such a possibility.

Structure 2 (Strong House, 1911; includes Feature 5)

This was a residential structure measuring 40 feet north-south by 47 feet east-west (Figure 4.3). The perimeter foundation is mortar filled cobbles (primarily granitic and stream washed ranging from approximately 2 to 12 inches and averaging 5 inches in greatest dimension). A mortar cap provided support for a nominal 6-inch wide plate. The outside of the foundation wall has been roughly finished with applied mortar to a depth of approximately 10 inches. Three locations on the foundation have been identified which appear to have framed the bottom portion of vents, two on the south wall and one near the east end of the north wall. A likely fourth symmetrical location near the west end of the north wall has been disturbed to the extent that no evidence of a vent could be expected to remain.

A poured concrete stairwell is present in the south half of the west foundation wall leading to a cellar (Feature 5) measuring 14 feet north-south by nine feet east-west. A doorway was identified at the north end of the west wall which opens out to the remains of a thin concrete paving, the edge of which was supported by an underlying double row of red bricks. The placement of the cellar entrance and what appears to be a secondary door on the west wall suggest that this was the rear of the house. This interpretation is supported by the presence of the Pomona-Rincon Road parallel to the east end of the structure and examination of a 1936 aerial photograph that suggests the presence of a porch or similar roof on the east side of the structure.

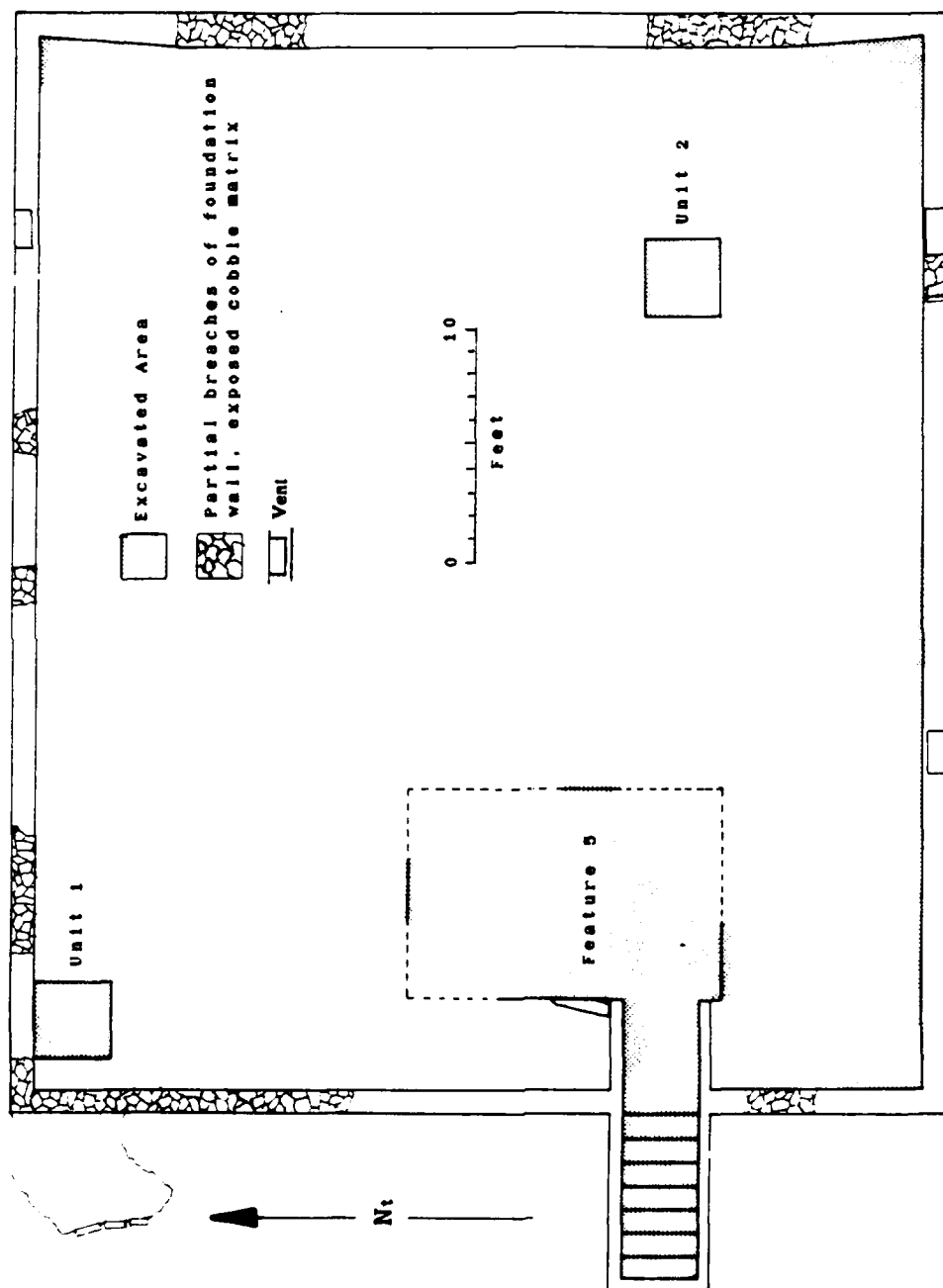


Figure 4.3. Structure 2 (Residence Foundation) map.

Concerted efforts failed to locate any central supporting foundations. It is likely that piers were used for central support. These may have been any type of suitable material, though none was identified. It is likely that demolition activities ca 1938 removed any evidence of these supports; breaches in the foundation walls suggest that a bulldozer or similar heavy equipment was utilized for the demolition which included filling of the cellar. A trapezoidal shaped concrete pier was found in the cellar fill (Feature 5), however the nature and identified source of the fill precludes a positive association with Structure 2.

The walls of the foundation exhibit an uneven quality, as if they were completed at different times, by different persons, or over a period of time by the same person(s) exercising variable degrees of care. The foundation, as a whole, does not appear to have been constructed by a particularly skilled worker. This suggests that the owner and/or hired hand(s) more frequently employed in other endeavors constructed the house. Similar attributes are apparent at Structure 9.

This structure has variously been reported to have measured 30 by 36 feet (1936 appraisal report for Orange County) and 42 by 42 feet (1941 appraisal report). The house was described as "rustic" construction (presumably wood), one story high, and resting on a concrete foundation. The house had six rooms, covered by a shingle roof. A suggestion has been made that the discrepancy may be explained by the possible presence of porches not counted in the first appraisal but counted in the second. Present measurement of the existing foundation (40 by 47 feet), even allowing for a porch which may have been separately supported, belies the accuracy of either appraisal. No evidence was found that would suggest later alteration of the foundation at any time.

Feature 5 (Cellar and Stairwell)

A poured concrete stairwell is present in the south half of the west foundation wall beginning 10 feet 6 inches north of the southwest corner of the structure. The stairwell walls, with an average height of 6 feet, vary from 6 to 10 inches thick and were apparently poured separately from and prior to the stairs. Interior forms for the walls were 6-inch wide boards placed at an approximate angle of 45 degrees, roughly following the stairs down toward the interior. The boards appear to have been full length, as no butt seams were found even though board edges were clearly discernible on the walls. The stairwell extends 7 feet 2 inches west from the foundation wall. Each of the seven 12 by 42 1/2 inch steps has a 9-inch rise; they terminate at a point approximately even with the foundation wall. The step riser form consisted of a 6 inch wide board over a 3-inch-wide board. The edges of the steps have been rounded and the tops finished, presumably by troweling. The stairwell continues for 5 feet 4 inches inside the foundation wall and opens into the cellar at the southwest corner. A step down approximately 12 inches in the interior portion of the north stairwell wall was accomplished during the pouring of the wall by inserting a 1-inch-thick board in the forms at an angle; this board remains in place with approximately 6 inches imbedded in the wall at an angle of approximately 70 degrees. A broken portion of a poured concrete wall extends



Figure 4.4. Feature 5 (Residence Cellar, Stairwell), looking west.



Figure 4.5. Feature 5 (Residence Cellar, fill detail). Fill is on the left.

for approximately 2 feet to the north for the east end of the northern stairwell wall. Cuts through the walls of the cellar reveal straight vertical walls, at least for the lower portions; it is likely that the upper portions of the walls were destroyed during demolition. A lack of appreciable amounts of concrete in the cellar fill and the presence of a few fragments of redwood boards suggests that at least the lower portions of the cellar walls may have been lined with boards.

The cellar measures 14 feet north-south and 9 feet east-west. The floor of the cellar was apparently dirt. A distinct soil change was observed at a level approximately even with the base of the stairs where the floor was a compacted yellowish silt and gravel matrix. Most of the cellar floor and remaining cellar walls were a fine yellowish-brown silt, contrasting with the brown, refuse- and cobble-filled, soil comprising the cellar fill.

During or following demolition the cellar hole was filled in with river cobble similar to those used for the foundation and assorted household and dairy debris. Some or all of the debris probably came from Feature 4, a refuse disposal area a short distance to the west of Structure 2. The fill material was removed in arbitrary levels from within the stairwell, and materials from the cellar were kept separate until frequent cross-mending of materials during the field examination made it clear that the entire deposit was homogeneous.

A majority of the cultural materials recovered from Feature 5 was found at or above the level of the fifth step down the stairwell, within the stairwell to the same level, and in the upper and western portions of the cellar in the vicinity of the stairwell. The bulk of the fill throughout the rest of the feature consisted of water worn cobbles and rocks and small quantities of dirt.

A single poured concrete pier (14 inches square at the base, 8 inches square at the top, and 11 1/2 inches high) was recovered within the cellar fill. This pier may or may not have been a support member for Structure 2.

Structure 3 (Garage, 1931)

The remains of this structure consist of a poured concrete perimeter foundation on three sides and a floor measuring 21 feet 10 inches by 16 feet 8 inches (Figures 4.6-4.8). The perimeter foundation locates the easterly, southerly, and westerly walls. The northerly wall presumably consisted of the vehicle entry door(s). A cross section of the foundation reveals a base width of 13 inches and a top width of 6 inches. The foundation is 13 inches in height, tapered from the base to the top equally on both sides. The depth from the ground surface on the exterior to the base of the foundation varies from 0 to approximately 2 inches; this depth and the variation are largely due to sheet erosion and buildup against the foundation. The interior ground surface follows a similar pattern with the exception that a small exposure revealed a 3-inch layer of compacted coarse sand beginning an average of 8 inches below the top of the foundation. This layer extends across the garage and is believed to have formed the floor. Bolts are set irregularly in the top of the foundation for securing the bottom plate of the structure.

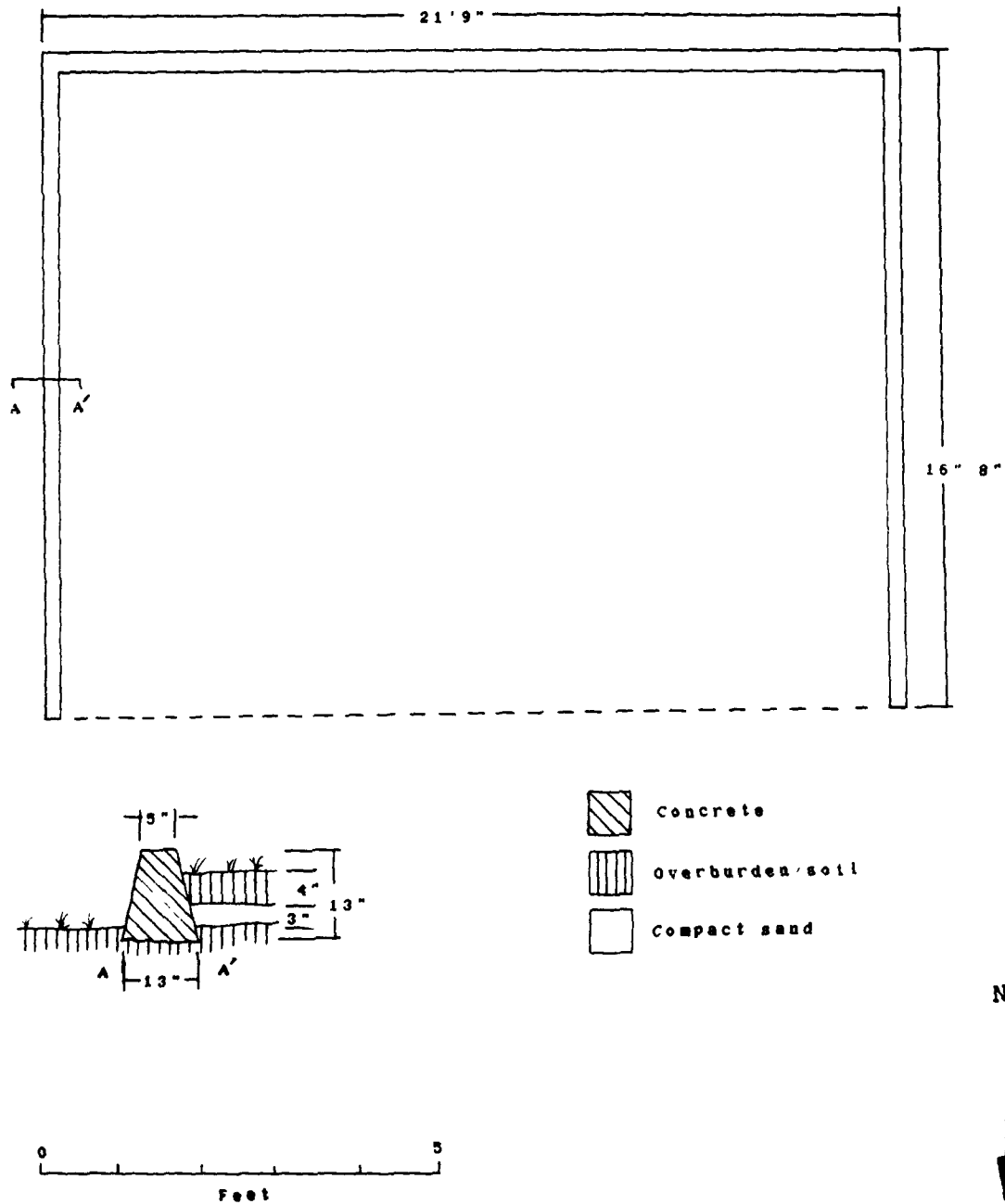


Figure 4.6. Structure 3 (Garage Foundation) map.



Figure 4.7. Structure 3 (Garage Foundation), looking southeast.



Figure 4.8. Structure 3, stratigraphic detail.

Few cultural materials were found in or near this structure. Those that were found in the immediate vicinity are generally related to transportation or similar activities, e.g., a spark plug such as would have been used in automobiles or other internal combustion engine vehicles in the early decades of this century.

The structure was reported as 16 by 20 feet in the 1936 appraisal report and 16 by 24 feet in the 1941 appraisal report. Neither dimension is strictly accurate but both are reasonably close. The appraisal reports agree that the structure had nominal 1 inch thick board-and-batten siding, that it was a single story structure divided into two rooms, and covered by a galvanized iron roof. The reports disagree, however, about whether the foundation was of concrete or wood sill construction. It is possible that the concrete foundation was added after the 1936 appraisal although the reported decline of the dairy and anticipation of acquisition suggest that this was unlikely to have occurred.

Structure 4 (Tank House)

The structure consists of a square poured concrete perimeter foundation with a small concrete slab foundation at the north west corner (Figures 4.9-4.12). The perimeter foundation is 10 by 10 feet. A cross-section of the foundation wall shows an 8 1/2 inch high vertical wall on the outside, a 7 inch wide top, and a sloping inner wall. The wall is 11 inches thick at the base of the formed walls. The remaining 5 inch depth of the foundation is irregular and up to 18 inches thick, as if poured in a roughly excavated trench below the foundation forms. Although various compacted gravels and unidentified materials are found across the interior, there does not appear to have been a purposeful floor. The general design and size of this foundation are similar to many tank tower and tank house foundations observed throughout California. A distinguishing feature in the author's experience is the concrete slab adjacent to the west side of the foundation near the north end. The slab is 4 by 4 feet in area and supports a drain near its southeast corner suitable for a toilet fixture. The northeast corner of the slab is broken, leaving an impression from a 2 1/2 inch pipe which passed vertically through the slab. Its purpose has not been determined although a likely function would be for the drain from a wash basin. Fragments of a porcelain toilet fixture were found scattered on and near this slab, which apparently served only as a toilet and washing facility. There was no evidence of a well near this location. The tank was apparently supplied by a lateral line from the primary trunk running from the well (Structure 1) to the western end of the site.

This structure was reported to be 9 by 9 feet in the 1936 appraisal report and 10 by 10 feet in the 1941 appraisal report. Neither report mentions the toilet facility near the northwest corner. The reports do indicate that the tank house was a single story structure of one room with 1 inch siding and a tin roof.

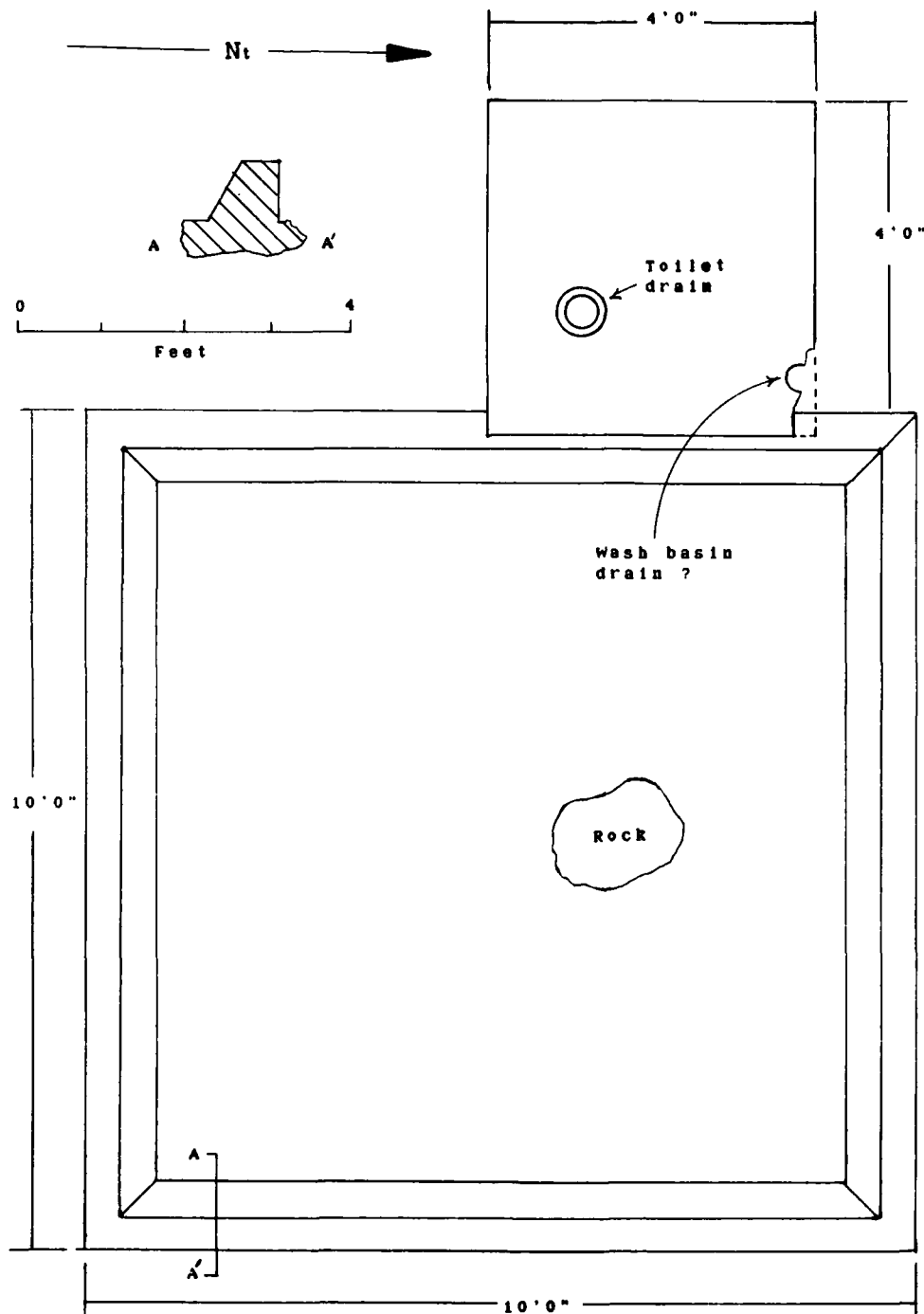


Figure 4.9. Structure 4 (Water Tank Foundation) map.



Figure 4.10. Structure 4 (Water Tank Foundation), looking north.

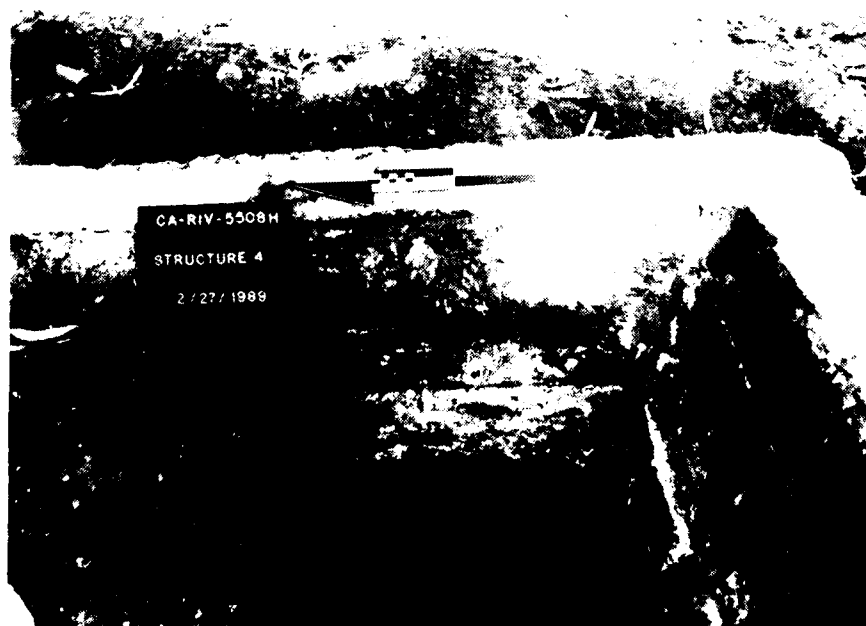


Figure 4.11. Structure 4, foundation detail, looking east.



Figure 4.12. Structure 4, shower detail, looking west.

Structure 5 (Milk House, 1936)

This is a standing, two-room structure, the only building which remains essentially intact (Figures 4.13-4.19). The foundation, a poured concrete slab, measures 10 by 16 feet. The roof, covering front and back aprons, is 11 feet 10 inches by 19 feet 4 inches. The milk room is the more northerly of the two, with dimensions of 9 feet 6 inches by 9 feet 3 inches. There is an exterior door at the west end of the north wall opening to a poured concrete entry pad 3 feet 6 inches by 6 feet 7 inches. The west end of this pad is even with the west wall of the structure but it has a broken edge and may have extended farther (Figure 4.20). The perimeter of the pad is supported by a row of red clay bricks. The portion of the pad in front of the entrance has 3/4-inch iron pipe lengths embedded in the concrete, presumably to protect the concrete from the repeated impacts of heavy milk cans. Inside the northern room there are marks on the floor from cans set regularly along the south, east, and north walls (Figure 4.21). Additional milk cans were set in the northeast corner. Near the southwest corner is a portion of the floor approximately 2 by 3 feet which has been scarred or pitted, possibly burned (Figure 4.22). No satisfactory explanation has been discovered for this occurrence.

The exterior walls consist of largely self-supporting vertical 1 by 4 inch tongue-and-groove boards attached to a framework of doubled 2 by 4 inch studs and plates. The interior walls are coated with a layer of troweled, wire-reinforced stucco over tar paper from the floor to ceiling (Figure 4.23), with the exception of the east wall which is coated only to the base of the screened window which is centrally located in the upper portion of the east wall (Figure 4.24). This window opening measures 4 feet 4 inches by 1 foot 9 inches. There

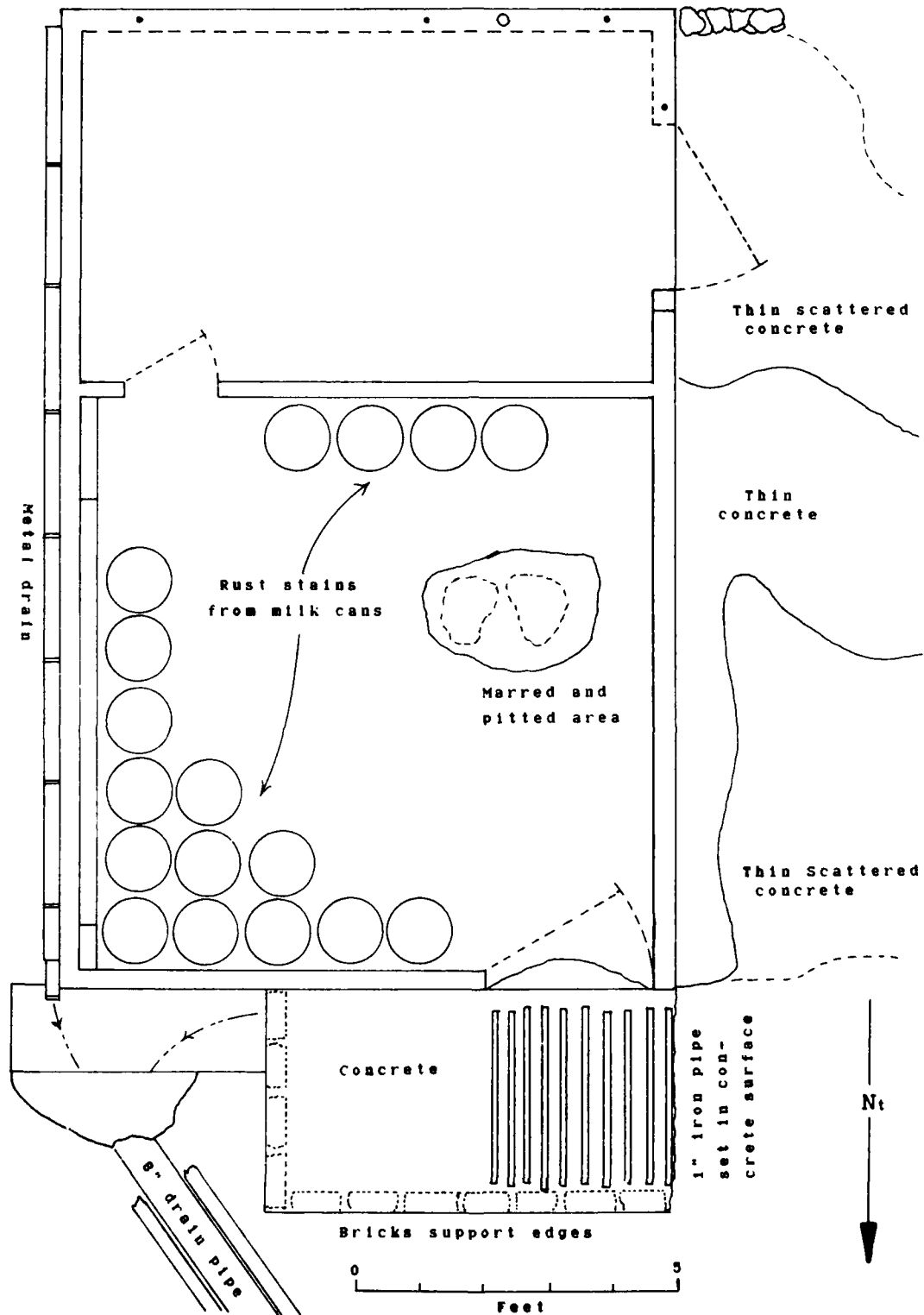


Figure 4.13. Structure 5 (Milk House) map.

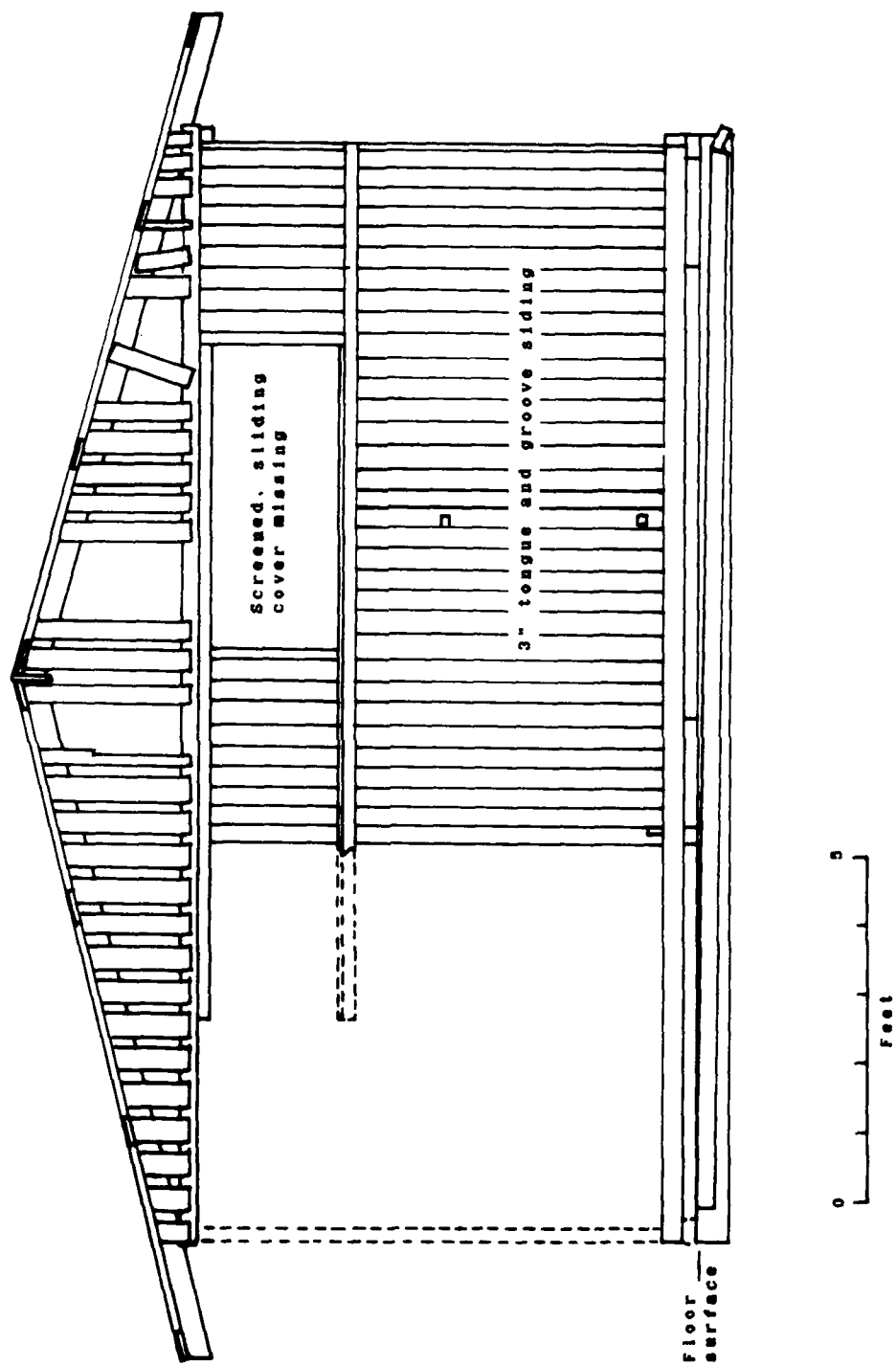


Figure 4.14. Structure 5, east wall elevation.

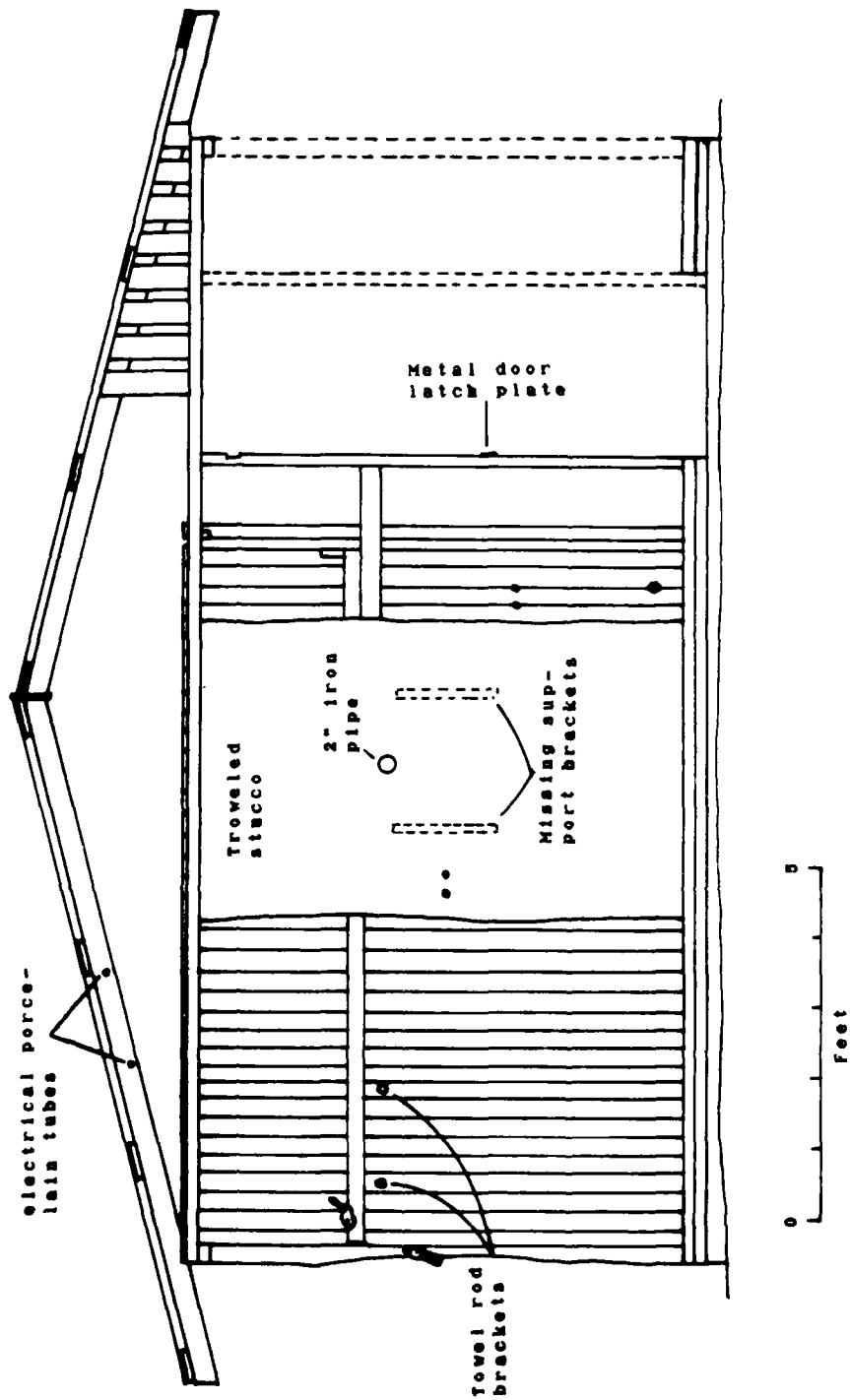


Figure 4.15. Structure 5, west wall elevation.

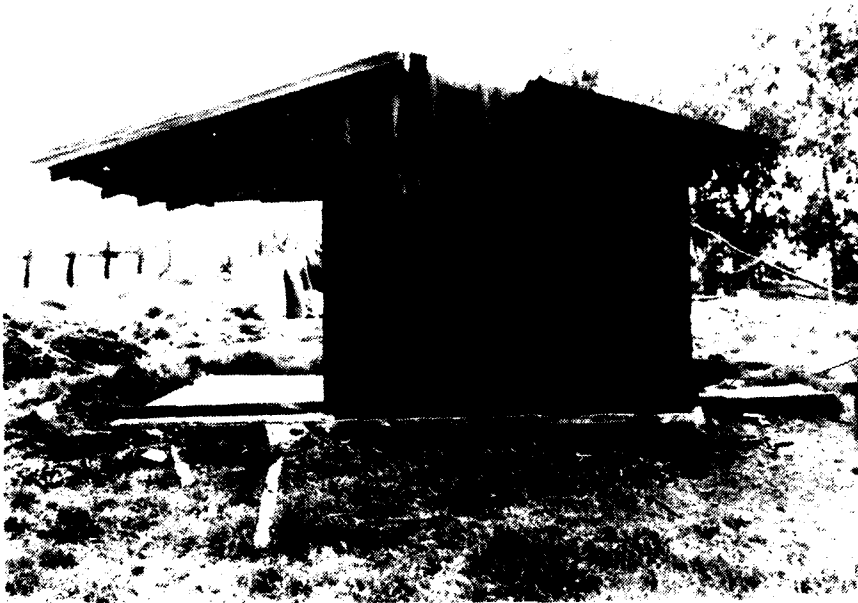


Figure 4.16. Structure 5, looking west.

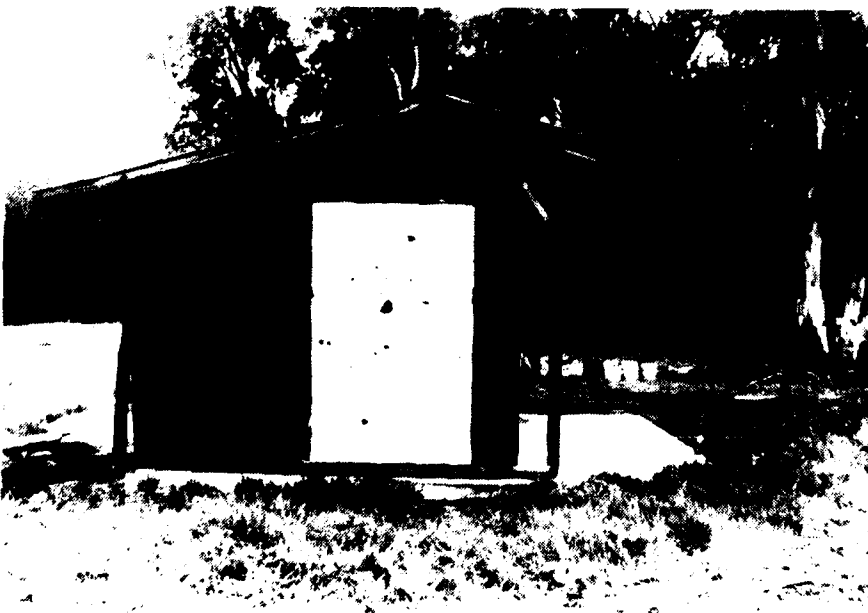


Figure 4.17. Structure 5, looking east.



Figure 4.18. Structure 5, looking north.



Figure 4.19. Structure 5, looking south.



Figure 4.20. Structure 5, Milk Room, entry/drain detail, looking west.



Figure 4.21. Structure 5, Milk Room, interior detail, looking east.



Figure 4.22. Structure 5, Milk Room, interior detail, looking west.



Figure 4.23. Structure 5, Milk Room, north wall detail, looking east.



Figure 4.24. Structure 5, Milk Room, east window detail, looking west-northwest.

are rabbited wood tracks in place for a sliding cover for the window. At the base of the east wall is an opening 4 inches high, which extends for most of the wall length (Figures 4.21 and 4.25). Both ends are blocked on the interior; these spaces, however, are open to the outside directly over a sheet metal gutter which runs the full length of the east side of the foundation slab and terminates over a drainage collector leading to a drain pipe. There is a hole lined with 2-inch iron pipe passing through the western wall at a point 2 feet 3 inches north of the south wall and 6 feet above the floor. This hole is centered in a 5-foot-wide area where the exterior of the wall is covered by a layer of troweled stucco that extends from the foundation to the approximate level of the ceiling (Figures 4.15 and 4.17). Marks from a set of brackets which would have supported a shelf or fixture just below this hole remain on the stucco wall. There are also two 1-inch holes bored through the stucco wall near the north edge at a height of 3 feet 8 inches above the concrete slab; their purpose is not readily apparent.

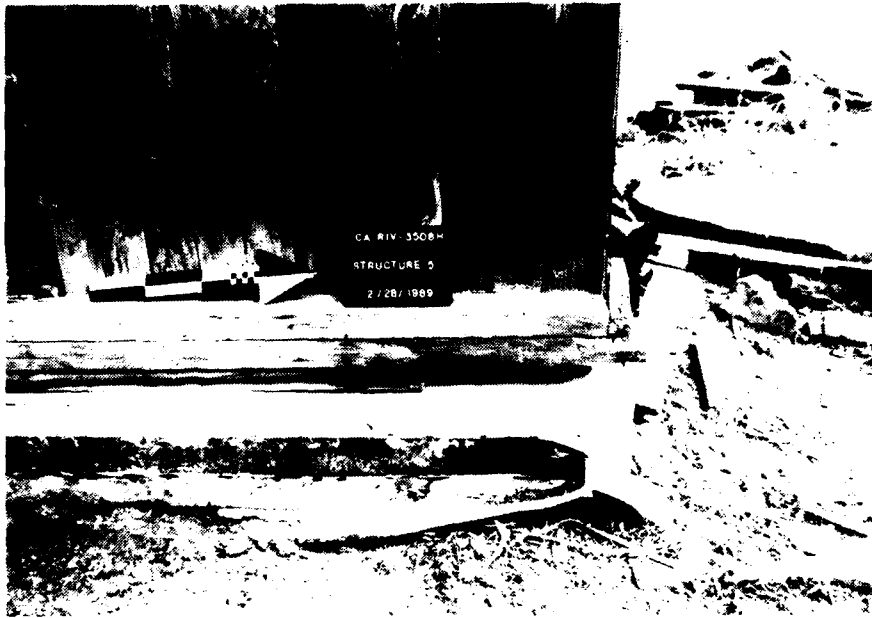


Figure 4.25. Structure 5, East Wall, exterior detail, looking west.

A narrow door located at the east side of the south interior wall leads from the milk room to the wash room (Figures 4.13 and 4.19). The wash room measures 8 feet 4 inches by 9 feet 6 inches. It could also be entered directly from the outside through a door centered on the west wall. A thin concrete pad covered the ground surface outside this entry (Figures 4.13, and 4.26), which is directly east of the milking barn, but it is badly broken up, and the original dimensions could not be ascertained. A 2-inch pipe which likely served as a drain for a basin or tub is present on the south wall of the wash room near the western end where it passes vertically through the concrete slab. There are anchor bolts along the slab edges where plates are no longer in place (Figure 4.27). A minimal amount of wall framing remains for this room, primarily for the west wall. The minimal framing remaining for the east wall still clearly shows an opening at the base of the wall extending for most of the length which would provide drainage to the sheet metal gutter running along the east side of the foundation slab (Figure 4.14 and 4.16). Openings for roof vents are present in the ceilings of both rooms; the openings in the sheet iron roof, however, have been patched over.



Figure 4.26. Structure 5, Wash Room, west wall detail, looking east.

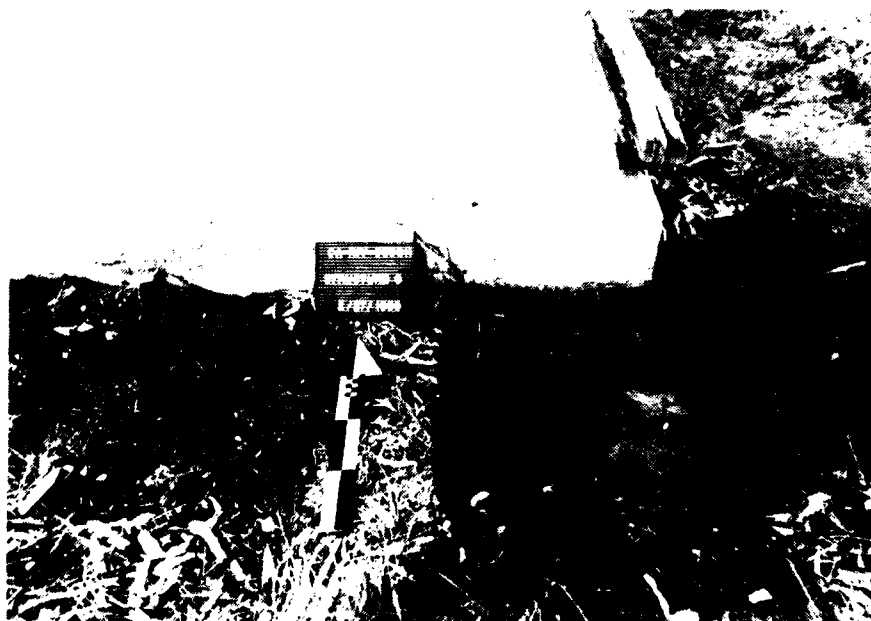


Figure 4.27. Structure 5, Wash Room, foundation detail, looking north.

Construction details present, or derived, for Structure 5 have been compared to the regulations for market milk dairy buildings (State Dept. of Agriculture 1939:XXII) with the following results.

Milk House

The milk house shall not be less than six feet nor more than fifteen feet from the milking barn and may be under the same roof (extended) as the milking barn. It shall contain at least two rooms; first, the milk room which shall be used for cooling and handling milk; second, the wash room for cleaning, washing, and sterilizing milk handling utensils and equipment. Compressor, boiler, milking machine motor, etc., shall not be allowed in the milk room. Boilers or heaters that emit smoke, soot, oil or objectionable odor shall not be permitted in the wash room [State Dept. of Agriculture 1939:XXII].

The foundation of Structure 5 is 15 feet 6 inches from the foundation of the milking barn (Structure 6). If eave measurements were allowed, the structure would be sufficiently close to the milking barn. Certain waivers were also available which would probably have allowed this placement. The required two rooms are present, and their features conform sufficiently with the regulations to identify their function as a milk room and a wash room. Feature 2 in Structure 9 is considered likely to have housed the sterilizer.

Receiving Tank and Pouring Platform

The receiving tank shall be located on the outside wall of the milk room. The entire wall behind the pouring platform shall be of smooth cement plaster. The platform and steps shall be of concrete, masonry or steel construction, properly installed to eliminate all corners and pockets difficult to clean. A rustless pipe with appropriate flanges or other rustless metal shall be placed in the wall at the necessary height to carry the milk conductor pipe. The hole in the wall used for the conductor pipe shall be equipped with an outside swinging shutter to exclude flies. The pouring platform shall be provided with an adequate roof with the underside smoothly finished. Where the roof over the pouring platform is part of the extended barn roof it shall be equipped with a satisfactory ventilator [State Dept. of Agriculture 1939:XXII].

It appears likely that the receiving tank was located near the west wall of the milk room, probably where the concrete floor is scarred. There is a 2-inch pipe through the wall at an appropriate location; it is not, however, of rustless metal, nor are there flanges present. There is no shutter currently present nor was any evidence found to indicate that one was previously attached. There was, however, a set of brackets formerly attached immediately below the conductor pipe hole. What the brackets supported is entirely open to speculation. A finished tongue-and-groove ceiling covers both rooms of the milk house.

Floors

The floors shall be constructed of concrete at least 4 inches thick and shall be troweled smooth and true, or of other suitable material approved by the Department, and shall positively drain to the outlets. A cove of two-inch radius is required at meeting point of floor and walls. A sand cushion of at least 6 inches shall be placed under concrete floor on soil other than sandy loam. On heavy soils or heavy fills where shifting of soil is probable the floor and walls shall be properly reinforced with steel [State Dept. of Agriculture 1939:XXII].

The floor is of concrete as specified, 4 or more inches thick, and exhibits a convincing drainage pattern. There is no cove at the floor and wall junction. No evidence of a sand cushion was observed; however, the soil is a well drained gravel filled loam.

Walls and Ceiling

The inside walls, partitions and ceilings shall be constructed of concrete, masonry or cement plaster and shall have a smooth finish. All walls shall be of concrete or masonry to a height of not less than 3 feet above the floor.

Main ceiling height shall be 9 feet from the floor. Where necessary, because of roof construction, ceiling may follow rafters down to the plate which low point, however, shall not be less than 7 feet 3 inches above the floor [State Dept. of Agriculture 1939:XXII].

The inside walls of the milk room all have a smoothly troweled stucco finish with the exception that the east wall is only finished to a height of just over 5 feet. The wash room walls are missing with the exception of the north wall, which is of vertical tongue and groove boards. The ceiling is only 7 feet in height, level with the wall plates.

Doors and Windows

Each room of the milk house shall have at least one window, with the total window area in each amounting to one-tenth of the floor area. Window screens shall be standard sixteen mesh, and shall be on removable frames mounted to open outward.

Exterior doors to the milk house may be one of two types: (1) combination doors with alternate glass or screen panels above and solid wood panels below, doors hinged to open outward; or (2) solid sash and panel doors used in conjunction with a standard screen door. A door shall be installed between the milkroom and the wash room, hinged to swing into the latter. Wooden door jambs or frames shall stop 6 inches above the floor, and the concrete floor cove shall be extended to fill the opening [State Dept. of Agriculture 1939:XXII].

The window area is only 8.6 percent of the floor area in the milk room. The remaining 1.4 percent requirement may have been provided by a screened window in the entry door, which, unfortunately, is missing. The window does not open outward; rather, it was constructed to slide completely open on tracks along the outside of the structure. The exterior door to the milk room is missing. The interior door between the milk room and the wash room is also missing, but evidence in the form of hinges and a strike plate indicates that it did swing in the proper direction. It is no longer clear whether the wooden door jambs stopped the required 6 inches above the floor, and there is no concrete floor cove present.

Ventilation

At least one wall ventilator shall be installed horizontally not more than six inches nor less than 3 inches above the floor in both the milk room and wash room. The ventilators shall be of a size that will provide one square inch of ventilation for each square foot of floor space for each room. Wooden forms should be removed from the opening, and metal jambs should be used for the screen. The bottom surface of the opening shall slope down toward the floor. Removable screens shall be installed on these ventilators and removable shutters may be installed when deemed necessary. Ceiling vents leading to roof ventilators shall be required in both milk room and wash room. These vents shall be shafted through to the roof ventilators. These shall be at least 24 inches by 24 inches in size and shall be equipped with removable fly escapes. Roof ventilators shall be of a size large enough to properly ventilate the room. These must exclude dust, rain, birds, trash, etc. [State Dept. of Agriculture 1939:XXII].

There is no wall ventilator as described above. There is, however, a drain essentially the full length of the east wall which would have served as a floor vent, although no evidence of screening was observed. Holes in the ceilings and matching holes in the roof which have been patched over indicate that appropriate roof vents were in place. There is no longer any evidence of fly traps or other features that may have once been present since the alterations and roof closure would have obscured their presence.

Drainage

Drainage from the milk house may be through the wall or under the door in the wash room to the gutter in the barn, or it may be by-passed around the barn and connected with the barn drain. If floor drains are used, they shall be screened to exclude trash, have a satisfactory water trap, and contain a clean-out plug to the sewer. If desired, the milk house drainage may be independent of the barn drainage. When closed sewers extend for more than 25 feet from the milk house they shall be vented just outside the exterior wall with a vertical stack extending through the roof [State Dept. of Agriculture 1939:XXII].

Drainage is through the wall the length of the east side of the rooms to an open sheet metal gutter attached to the side of the foundation slab. This gutter empties onto a small shaped concrete basin which funnels the drainage into a 6-inch drain pipe made of various materials. That drain in turn connects to the milking barn drain. Venting is absent due to the open nature of the drainage to a point approximately 3 feet from the milk house.

Painting

All inside woodwork must be properly painted with a light colored waterproof paint [State Dept. of Agriculture 1939:XXII].

All interior surfaces are, or show evidence of having been, painted. The paint appears to be an oil base paint, either off white or cream colored.

Refrigeration

Equipment to satisfactorily cool market milk shall be provided. When refrigeration boxes are installed, they shall not extend into the milk room to the extent of jeopardizing work space. Built-in refrigeration boxes protruding into the wash room or milk room shall continue the wall construction specified for those rooms [State Dept. of Agriculture 1939:XXII].

No definitive evidence of refrigeration remains. The milk house was electrified and given the extent and nature of other features observed, it is reasonable to assume that refrigeration facilities were present.

Structure 6/9
(Milking Barn/Horse Barn, 1926/1911; includes Features 2 and 7)

Although joined, possibly under a common roof, these structures were built at different times (Figure 4.28). The horse barn (S-9) may also have been altered prior to construction of the milking barn (S-6).

Structure 9 was described in the 1936 assessment report as a horse barn 35 by 45 feet, one room, single story, with 1-inch vertical board siding. The 1939 assessment report indicated 40 by 45 feet dimensions. At the time of this examination the foundation measured 36 by 45 feet, with irregularities adding up to 5 inches at some points. At least five areas within the structure were sufficiently different to suggest separate uses. It could not be determined whether these areas were partitioned with walls. Differences in the foundation between the south half and the north half of this structure suggest that it was built in two stages.

The south half (20 by 45 feet) of Structure 9 appears to have been originally constructed with a loose laid rock perimeter foundation which was filled with cobbles and soil level or nearly level with the top of the foundation (Figures 4.29 and 4.30). The northeast corner of southern portion of the east wall is now composed of red clay brick (Figure 4.31); this may either have been original or a later repair. There is a cold joint between the north and south half of Structure 9 in the east wall (Figure 4.31). There are repairs to the entire west wall of the foundation. Red clay brick was used to repair the north end of the west wall, probably at the time the north half of the structure was added as there are no discernible joints. At a later date the entire west wall (north and south half of Structure 9) was reconstructed by placing forms on one or both sides, depending on accessibility, and pouring concrete over the existing foundation.

Three areas were differentiated within the south half of Structure 9. The eastern portion (12 1/2 by 20 feet) is covered by concrete averaging 1 1/2 inches in thickness (Figures 4.32 and 4.33). This surface is currently cracked and broken. Feature 7 (a leach pit) is located in the northeast corner of this portion (Figure 4.37). The central portion (12 by 20 feet) is a hard packed surface of coarse sand and fine gravels over and mixed with the cobble and soil fill. This surface appears to extend under the concrete in the eastern portion. A few loose red clay bricks were found on this surface, suggesting that it may

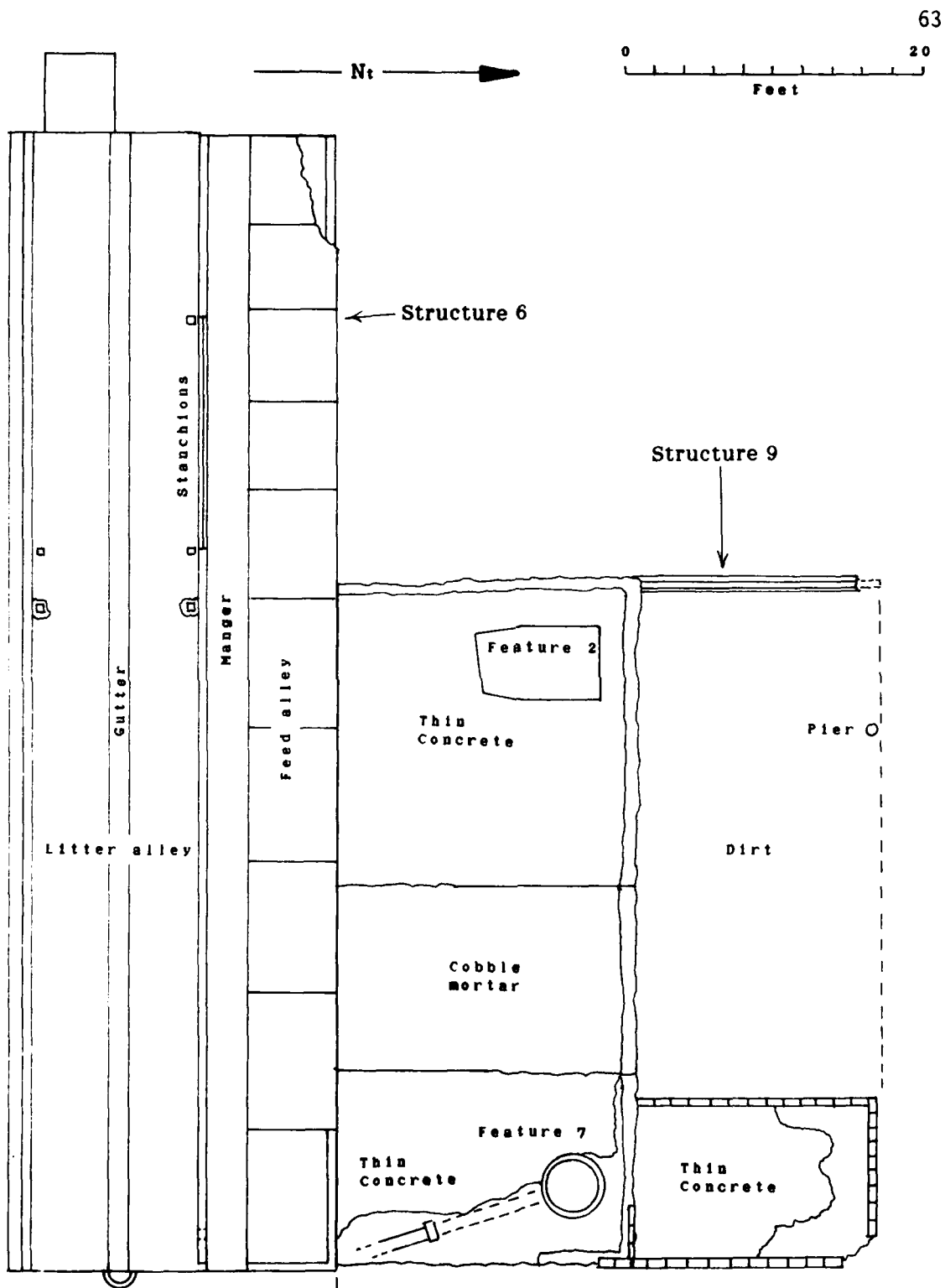


Figure 4.28. Structure 6/9 (Horse Barn/Milking Barn) map.

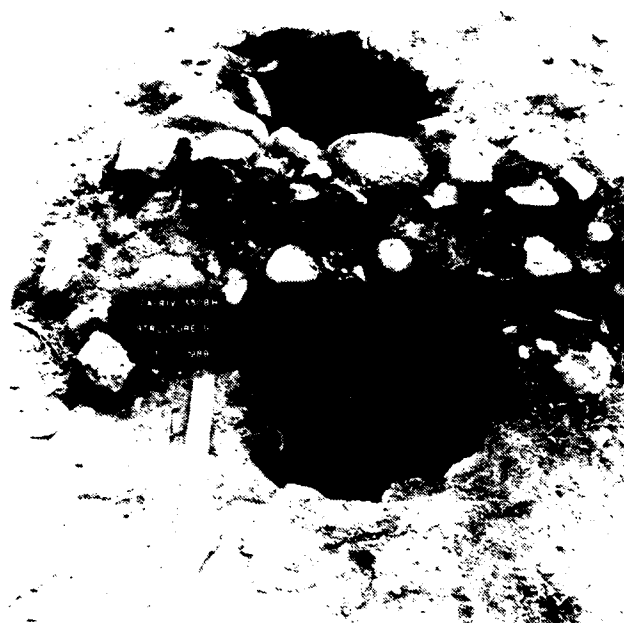


Figure 4.29. Structure 9 (Horse Barn) foundation detail. Exposure of foundation between northern and southern portions, looking south.



Figure 4.30. Structure 9, foundation detail. East wall at junction with Structure 6, looking southwest.



Figure 4.31. Structure 9, foundation detail. East wall at junction between northern and southern portions, looking west.

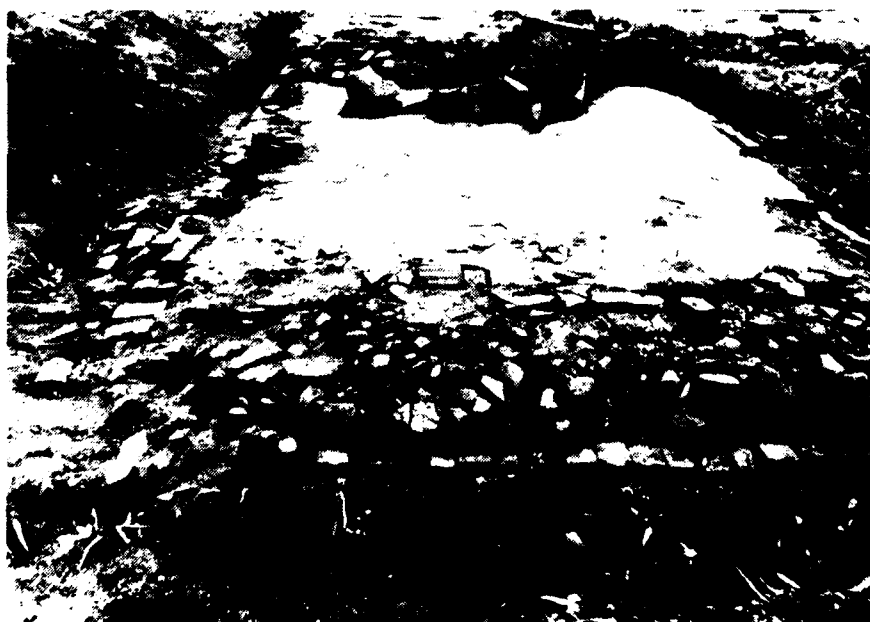


Figure 4.32. Structure 9, east end detail. Looking south at northeastern corner, note thin concrete paving.



Figure 4.33. Structure 9, east end detail. Same view as Figure 4.32, showing a single course of brick.

be roughly 2 1/2 feet in diameter. It was covered with a broken concrete cover with a 5 1/2 inch diameter hole in the center. The feature is filled with dirt which was excavated only to the extent necessary for definition (3 feet). Exploration with a hand auger failed to penetrate beyond a depth of 5 1/2 feet. There was no determination of purpose for this feature.

Two areas were differentiated within the north half (16 by 45 feet) of Structure 9. At the eastern end there is a thin (average 1/2 inch thick) layer of concrete laid on a cobble filled dirt base (10 1/2 x 16 feet). The edge is contained on the south side by the cobble foundation of the south half of the structure. The east edge is supported by two courses of mortared red clay bricks two bricks wide. The north edge is supported by a single course of loose laid red clay bricks placed side by side. The west edge is supported by a single course of loose laid red clay bricks placed end to end. Although no direct evidence was found, it appears likely that this surface was used for vehicle or equipment storage. The north wall of the structure appears to have been open or to have consisted primarily of large doors. If the eastern surface was used for a vehicle or equipment, there must have been an opening. The remainder of the north wall shows no evidence for a foundation with the exception that 8 feet east of the northwest corner there is a 5-gallon concrete-filled can buried in line with the north wall that apparently served as a support pier. The west foundation wall is composed of four courses of red clay brick, two bricks wide, now encased in poured concrete.

Feature 2

Feature 2, located in the northwest corner of the south half of Structure 6, is 5 feet by 7 feet 8 inches in area and 2 feet 6 inches deep (Figures 4.34-4.36). The northern two-thirds of the feature has poured concrete walls, the southern one-third has walls made of a single width of red clay bricks. At least three courses of red brick, two bricks wide, line the inside of the poured concrete walls. A course of fire brick forms a floor within this area. Two manufacturers' incised marks are present: "PACIFIC EXCELSIOR," from the Pacific Clay Manufacturing Company, which operated in California during the 1930s according to Gurcke (1987:278, 279). However, Ketchum reports the company in business from 1880 to 1930 (1987:139). Lehner reports:

Pacific Clay Products Company. Los Angeles, California. 1881 until after W.W. II. The pottery was established in 1881 according to McKee (p. 49). ... Around 1930, for a short time, Pacific Clay Products made dinnerware, but went back to technical or commercial products. In the very early years they made stoneware, tile and crocks. Barbara Jean Hayes said by the late 1800's Pacific Clay Manufacturing Company had several plants in Southern California. Elsinore, Alberhill and Riverside were all locations for the very early plants that made yellowware and red clay products [Lehner 1988:335].

The "Excelsior" is considered a second quality brand (AFI 1942:37). "LABPCo/ALBERHILL" where a single oversize "A" serves both lines, this mark has not been specifically identified. However, the above information suggests that they were manufactured in southern California, possibly by Pacific Clay Products Company, a subsidiary, or similar local company. An opening, devoid of mortar, on the south side of the concrete portion apparently opens to the remainder of the feature. The walls of the southern portion are built with two courses of half size cement blocks stacked on edge and capped with three stretcher courses of red brick. The feature may have served to support and partially house a sterilization unit for dairy tools and paraphernalia.

The lower levels within the feature were dominated by rubble from the collapsed brick perimeter. Although the floor of the feature appears intact, several fire bricks were found in the rubble; their origin remains unknown. Minimal remains of approximately 1/2 inch thick plaster remain on the interior of the southern portion of the feature. The fibrous material noted in Figure 4.34 at the south end of the feature was also distributed throughout the rubble. It has been identified as a clay and asbestos fiber mixture. The clay is a very pale brown (Munsell 10YR8/3) and is not vitrified. It is likely that the material was used (or the intended use was) for filling and sealing voids in the heat producing, or containing, portion of the feature.

Cross-mending of fragments from several items recovered from both the 0-20 and the 20-40 centimeter levels of Feature 2 suggest that filling of the feature occurred as a single-episode event.

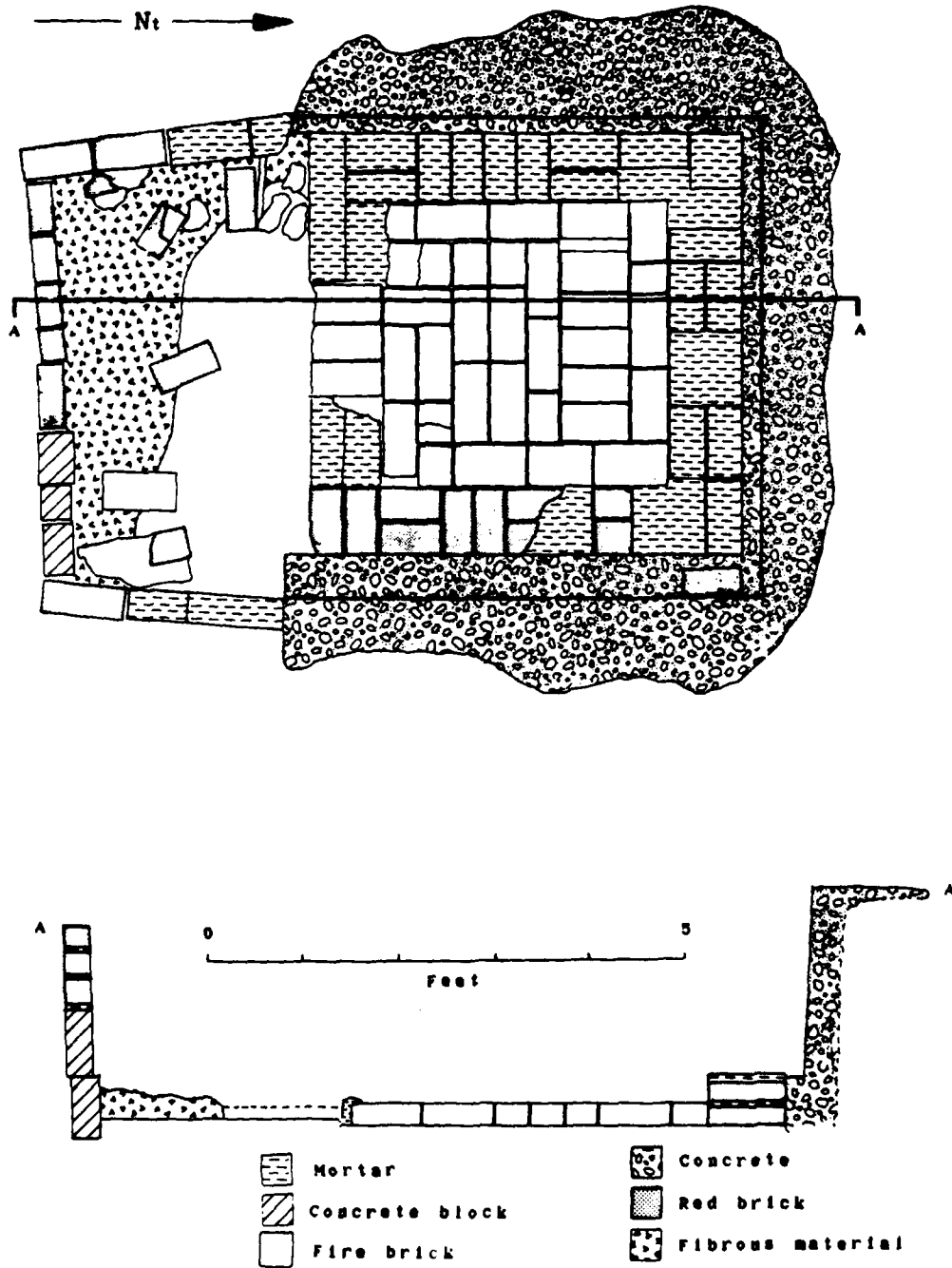


Figure 4.34. Structure 9, Feature 2 map.

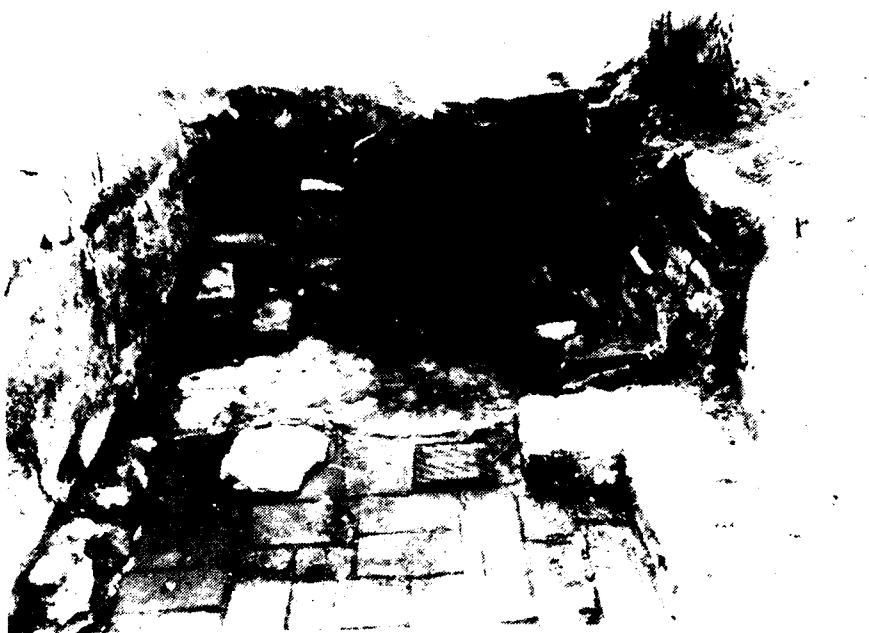


Figure 4.35. Structure 9, Feature 2, looking south.

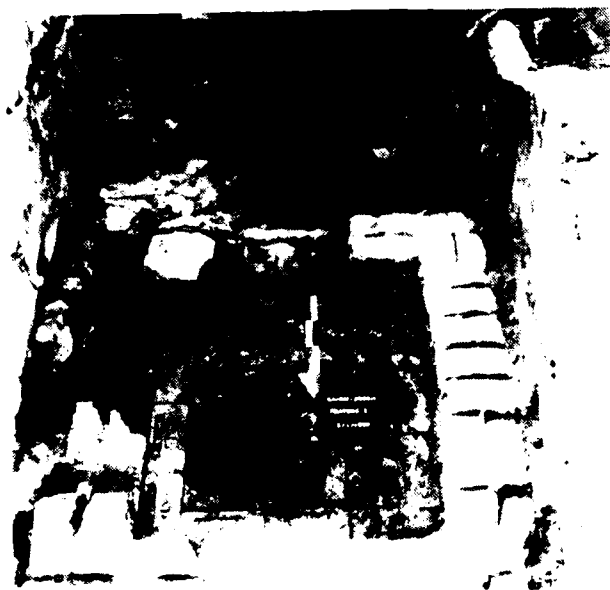


Figure 4.36. Structure 9, Feature 2, looking south.



Figure 4.37. Structure 9, Feature 7, looking west.

Feature 7

Feature 7 appears to be a leaching pit (Figure 4.37). It is 36 inches (inside) diameter and was constructed using eight 8 by 14 by 2 1/2 inches curved cement blocks per course. Each block has three 2 1/2 inch holes which provide drainage for the structure. A dense layer of cobbles was discovered beneath the five courses of cement blocks. A cover, 2 1/2 inches thick and 45 inches outside diameter was in place at floor level. A 12 inch diameter hole is in the center of the cover. An 8 inch clay sewer pipe enters the cylindrical feature near the top. Although no longer complete, this line appears to have originated at the outlet end of the feed trough in Structure 6. The outlet was closed at the time of our examination and a hole had been punched through the eastern end of the stem wall on the south side of the trough to provide drainage to the litter gutter (Figure 4.41). The trench for the sewer pipe is intrusive into the cobble and soil base, suggesting installation during construction of Structure 6 or at some later date. Specific questions addressed to informants failed to elicit any knowledge of the feature's presence or purpose.

Structure 6 was clearly constructed at a later date than Structure 9. The foundation consists of two raised, poured concrete slabs forming the north and south portions of the structure, supporting poured concrete stem walls, and above grade stem walls (Figures 4.28 and 4.38). The foundation and slab for the north side of the structure (a feed alley) are a total of 9 feet 8 inches wide by 76 feet 8 inches long (Figure 4.38 and 4.39). The south side of the structure is 12 feet 8 inches wide by 76 feet 8 inches long (Figures 4.28 and 4.38-4.41). The foundation for this structure was poured in distinct stages.



Figure 4.38. Structure 6, Milking Barn, looking west.
Stanchion in center background is part of Feature 3.



Figure 4.39. Structure 6, Milking Barn, looking
southeast.



Figure 4.40. Structure 6, Milking Barn, looking east.
Note entry apron.

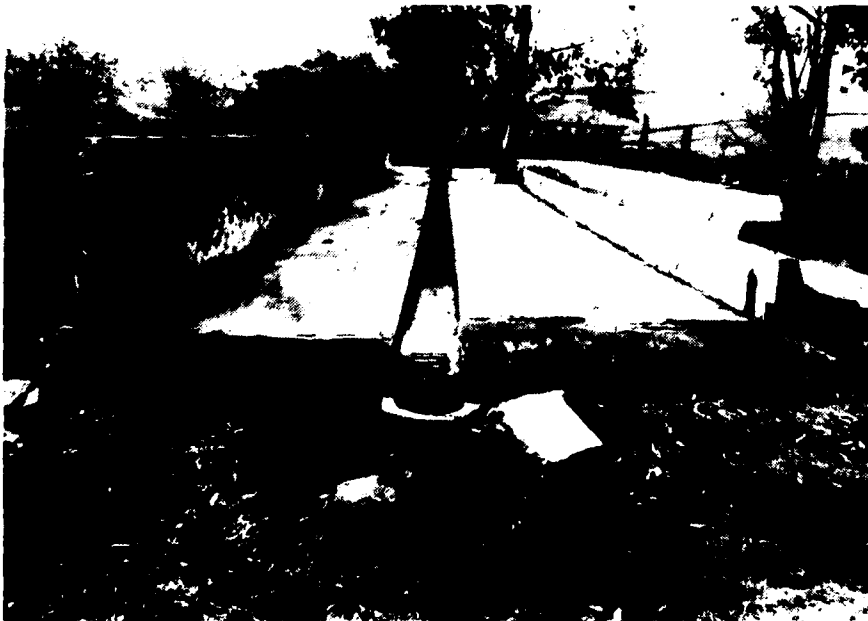


Figure 4.41. Structure 6, Milking Barn, looking west.

The south wall appears to have been poured first. The 12 1/2 inch thick footing is at least 20 inches wide at the base, tapering in from the outside edge 6 inches at the top. The stem wall is 9 inches wide at the base and even with the north side of the footing, which is vertical at this point. The stem wall tapers on the outside to a thickness of 5 inches at the top, a total of 3 feet 8 inches from the top of the footing. A shaped stem wall was then poured along the east side of the structure approximately level with the Structure 9 foundation. The sloped enclosed area was filled with cobbles and soil. Then an 18 inch high, 4 inch thick perimeter stem wall was poured for the east, north, and west sides of the north portion of the structure, with the north wall supported by the cobble foundation which formerly supported the south wall of Structure 9 (Figure 4.30). Bolts and used horseshoes are set in the top of this wall for anchoring the slab it supports. Two bolts and four horseshoes are visible as a result of breakage along the edge of the slab (Figure 4.39). The south stem wall for this portion of the structure was poured separately, rising approximately 4 inches higher than the other walls (Figure 4.38). It is 3 1/2 inches wide at the top with a vertical south side and a north side expanding to an 8 inch wide base. The enclosed area for the north portion of Structure 6 was filled with cobbles and soil. A slab 5 feet 9 1/2 inches wide was then poured in 10 approximately equal sections on the north side of the structure (Figure 4.39). The slab is supported by the perimeter stem wall on the east north and west sides, lapping over the north wall an average of 1 inch. A concave feed trough was then poured between the slab and the south stem wall. A profile of this portion of the structure is consistent with descriptions for a low manger with raised feed alley (Figure 4.38).

There is a 12 inch drop from the top of the central stem wall to the surface of the slab forming the south portion of Structure 9. On the south side there is a 3 feet 2 inch rise from the surface of the slab to the top of the south stem wall. The central portion of this slab is occupied by a gutter separating the stalls and litter alley (Figure 4.41). The gutter drains to a concrete and clay pipe drain feature (Figure 4.42) which is joined by the drain from Structure 5 (Figure 3.1). Comparison with 1939 dairy standards follows:

Size

A milking barn of adequate size shall be provided for all dairies producing market milk or cream. When the herd is milked in units it is satisfactory to provide one stall for each 4 or 5 cows in the herd. With the walk-through design, when concentrates are not fed during the milking period, this limit may be increased to 12 or more cows per stall.

The milking barn shall have at least 400 cubic feet of air space and at least 3 square feet of window space with or without glass for each stall [State Dept. of Agriculture 1939:XXII].

This dairy is reported to have supported a 60-cow herd. The length of the milking barn is sufficient for the support of 20 stalls, more than adequate for



Figure 4.42. Structure 6, Milking Barn, gutter drain; looking northwest.

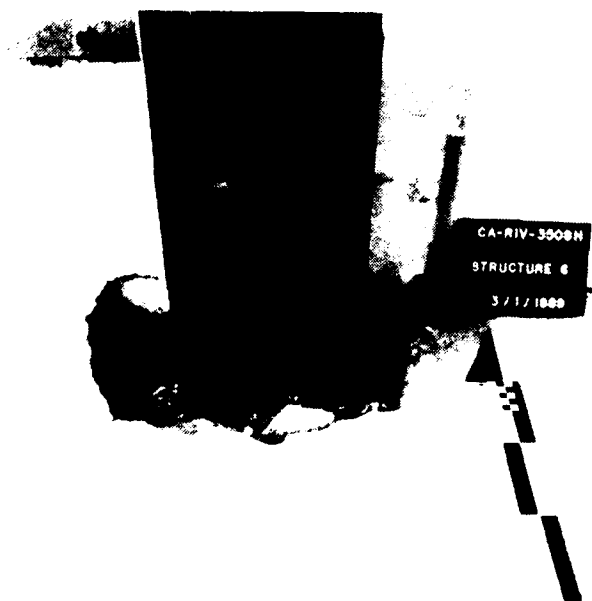


Figure 4.43. Structure 6, Milking Barn, stanchion support, looking north.

a 60-cow herd. At the time of the examination, the remains of only five stalls could be discerned (Figures 4.28 and 4.39). Alterations evidenced by the presence of a substantial post in one of two holes punched through the slab on opposite sides of the stall/litter alley area at a point corresponding with end of the five stanchions still in place at the west end of the barn suggest that the remainder of the milking barn may have been converted for other purposes (Figures 4.28 and 4.43). The presence of a rubber milking machine teat cup in the debris removed from Feature 5 further suggests that a milking machine may have been installed during the later years of use. If that were the case then five stalls would have been adequate for a 60 cow herd at that time. Although no other remains of the structure are present it is likely that the requirement of 400 cubic feet of air space per stall was easily met. The height of the outside (south) concrete wall would have allowed for the installation of more than the required ventilation.

Stalls

The stall or standing platform shall not be less than 3 feet wide for each cow and shall be from 4 feet 10 inches to 5 feet from stanchion line to gutter depending on size of the cattle. Where stanchions are not used, the platform shall be 7 feet long [State Dept. of Agriculture 1939:XXII].

As noted, the length of the barn would have allowed for 20 stalls at least 3 feet wide. The five existing stanchions vary from 3 feet 2 inches to 3 feet 3 inches in width (Figure 4.39). The stalls are 5 feet in length from the stanchion line to the gutter.

Alleys

The litter alley exclusive of gutter shall be not less than 4 feet 9 inches wide behind a single string of cows. In two-string, head-out barns the litter alley shall be at least 8 feet wide between gutters.

The feed alley in single and two-string, head-out barns shall be a minimum distance of 5 feet 9 inches wide between stanchion line and wall. In two-string, head-in barns a minimum of 10 feet between stanchions is required.

In the walk-through barn, the alley in front of the cows shall be at least 4 feet 9 inches wide.

In standard stanchion barn a trench gutter is required. It shall be not less than 14 inches wide and 4 inches deep, sloping 1/2 inch across its bottom to the litter alley, and shall have a uniform depth for its entire length [State Dept. of Agriculture 1939:XXII].

The litter alley in Structure 6 is 4 feet 11 inches, the feed alley is 7 feet 9 inches from the stanchion line to the wall, and the trench gutter is 14 inches wide and 4 inches deep, meeting all standards for alleys.

Curbs, Stanchions and Mangers

The curb shall be at least 6 inches thick, and 12 inches high from the stall floor. The corners shall be rounded off. Steel stanchions or surfaced wood stanchions may be used. The lower horizontal member shall be at least 2 inches above the stanchion curb. Stanchion posts shall be anchored to top of curb by U-shaped strap iron anchors or equivalent; a wood sill is prohibited. The mangers shall have a minimum width of 2 feet 3 inches with a back wall at least as high as the curb. Sharp corners shall not be permitted. The mangers shall have a low point 8 inches out from the curb and at least 3 inches above standing platform. A true lengthwise slope must be provided and a drain at least 3 inches in diameter installed at low end for easy cleaning [State Dept. of Agriculture 1939:XXII].

The curb is only 3 1/2 inches thick at the top, but it tapers out to an 8-inch wide base, which may have been allowed with a waiver. The top of the curb is 14 inches above the stall floor. The existing stanchions are elevated 2 inches above the curb with bolts set in the curb. The manger is 2 feet 5 3/4 inches wide and the back wall is even with the curb; the low point of the manger is 8 inches below the curb, which is, in turn, 6 inches above the stall floor. The lengthwise slope is adequate and waste is conducted to a 6 inch drain.

Floor Slope and Finish

The entire floor, including the alleys, gutters, mangers and curbs shall slope lengthwise 1 inch in each 10 feet. The standing platform and litter alley shall be of concrete at least 4 inches thick and shall slope 1 inch toward the gutter. The mangers, curbs and feed alleys shall be finished smooth with a steel trowel. The standing platform, litter alley, and gutter shall be given a true, even surface with a wood float, and, to eliminate being too slippery, a final finish with a stiff rattan barn broom, or other suitable instrument, drawn in the direction of slope. A sand cushion of at least six inches shall be placed under floor on soil other than sandy loam. On heavy soils or heavy fills where shifting of soil is probable the floor and walls shall be properly reinforced with steel [State Dept. of Agriculture 1939:XXII].

Slope of the milking barn floor is approximately an 8-inch drop over the length of 76 feet 8 inches, from west to east. The standing platform and litter alley slabs are 6 inches thick and slope approximately 4 inches to the gutter.

Although worn, the finish appears to have conformed with the regulations. No sand cushion was observed, however, and the slab did not appear to be in direct contact with any of the cobble fill, only with coarse sandy loam.

Walls

All lower walls shall be of masonry or reinforced concrete and those along standing platforms or litter alleys shall be at least 3 feet 6 inches in height above the floor. Such walls shall be finished smooth on the inside with the top ledge on open walls rounded [State Dept. of Agriculture 1939:XXII].

The lower wall adjacent to the litter alley is of poured concrete and finished smooth on the inside; the height, however, is only 3 feet 2 inches. This does not appear to have been an open wall (anchor bolts are present for securing a plate), therefore the lack of rounding on the top edge is of no consequence. The height discrepancy may have been allowed by a waiver or exemption, given the closed nature of the wall. The wall is completely intact and the presence or absence of reinforcing could not be determined.

Ventilators

Adequate ventilation shall be provided for the milking barn [State Dept. of Agriculture 1939:XXII].

Although there is no direct evidence of provisions for ventilation, it appears likely that adequate ventilation was provided.

Barn Doors

The lower half of barn doors shall be properly covered with tight-fitting galvanized iron or other suitable metal [State Dept. of Agriculture 1939:XXII].

No evidence remains to judge the adequacy of the doors.

Wash Sink

A stationary hand wash basin connected with the water supply piping shall be provided convenient to the line of travel between the barn and pouring platform [State Dept. of Agriculture 1939:XXII].

The drain in the wash room of the milk house is not far out of the line of travel, and facilities there were probably considered adequate (Figures 3.1 and 4.13). No evidence of any other wash basin was found in this portion of the site.

Painting

Only waterproof paints or oils shall be used in the barn [State Dept. of Agriculture 1939:XXII].

No evidence of paints or oils remained at this structure. Paint used in the milk house appears to comply and there is no reason to believe that finishes used in the milk barn were not adequate as well.

Drainage from Roofs

Under no circumstances shall rain water from roofs be allowed to drain into corrals [State Dept. of Agriculture 1939:XXII].

No roof or roof drainage facilities remain to assess this requirement. However, all corrals in the immediate vicinity of the barn would necessarily have been uphill and therefore probably not affected.

Ramp and Holding Corral

A concrete ramp or platform shall be constructed outside the herd entrance and exit door. A paved alley or holding corral adjacent to the barn is permitted. Satisfactory drainage from such areas shall be provided [State Dept. of Agriculture 1939:XXII].

Remaining details suggest that the cows were brought in and taken out through the same entrance, on the west side of the barn. There are remnants of a small concrete pad at that entrance. Feature 3 may have been a holding corral; it is not paved, nor is it directly adjacent to the barn. Use of this feature as a holding corral may have been allowed. This feature may have been a late addition, in conjunction with the hypothesized use of a milking machine when feeding may have occurred separately from milking.

Feed Storage Rooms

Grain and feed storage rooms shall be properly partitioned off from the milking barn proper, and shall be fly and rodent proof.

The feed storage room shall be located on the end of the milking barn opposite the milk house. In the event that it is separated from the milking barn, it shall be located at least 25 feet from the milk house [State Dept. of Agriculture 1939:XXII].

It appears likely that Structure 9, attached to Structure 6 on the north, was used for a feed storage room in addition to other purposes. It may have been open to the feed alley, there was almost certainly at least a doorway access, although direct evidence is lacking.

Toilets

Each dairy shall be provided with adequate toilet facilities. Each toilet shall be of a sanitary type, properly flyproofed and accessible [State Dept. of Agriculture 1939:XXII].

A toilet facility was present at Structure 4 (Figures 3.1 and 4.9). The facility, on a concrete slab, appears to have been enclosed by a standard frame structure that presumably complied with regulations.

Structure 7 (Water Trough)

Structure 7 (Figures 4.44 and 4.45) is a poured concrete stock watering trough. It is supplied by a pipeline originating at Structure 1 (well) and terminating at a presumed water tank (Structure 8). Water appears to have been supplied from Structure 8, however, portions of the water lines were missing and water may have been supplied under pressure from the well at Structure 1. Water may have been supplied from either source, dependent on pump operation (see Feature 1 also). The 4 feet 10 inch by 12 feet 11 inch water trough rises 2 feet 5 inches above a surrounding sloping apron that averages 4 feet 6 inches in width. The walls of the trough average 6 inches in thickness.

Structure 8 (Foundation, Water Tank)

The configuration and location of the foundation strongly suggest use as a water tank support (Figures 4.46-4.48). This is further supported by termination of an extensive water system line at this point. The foundation comprising Structure 8 (Figure 4.46) has sides averaging 4 feet 6 inches long (centerline) forming a hexagon measuring 8 feet 6 inches (flat side to flat side). The poured concrete foundation is trapezoidal in cross-section, with interior and exterior sides sloping equally. The base is 24 inches wide, the top a nominal 6 inches, and it is 18 inches high. The plate is nominal 2-by-6-inch lumber, secured with anchor bolts. A single 4-by-4-inch upright, 26 inches long, remains roughly in place at the center of one section. Marks on the plates indicate that each section supported a similar upright. It could not be determined whether similar uprights were placed at the corners as well. The uprights presumably supported a water tank directly or upon a platform, additional lumber fragments suggest a platform was present. See Feature 1 below for a discussion of the water system (and Structures 1 and 4).

Feature 1

Feature 1 (Figures 3.1 and 4.49), located midway between Structure 3 and Structure 5 and west of Structure 4, is a (check?) valve box and waterline junction. The 3-inch iron pipe was traced from Structure 1 (well) in a westerly direction past this location, past the northern end of Structure 9, around the northwest corner of Structure 7, and to Structure 8 (interpreted as a water tank). Structures 5, 6, and perhaps 9, are presumed to have been served by this

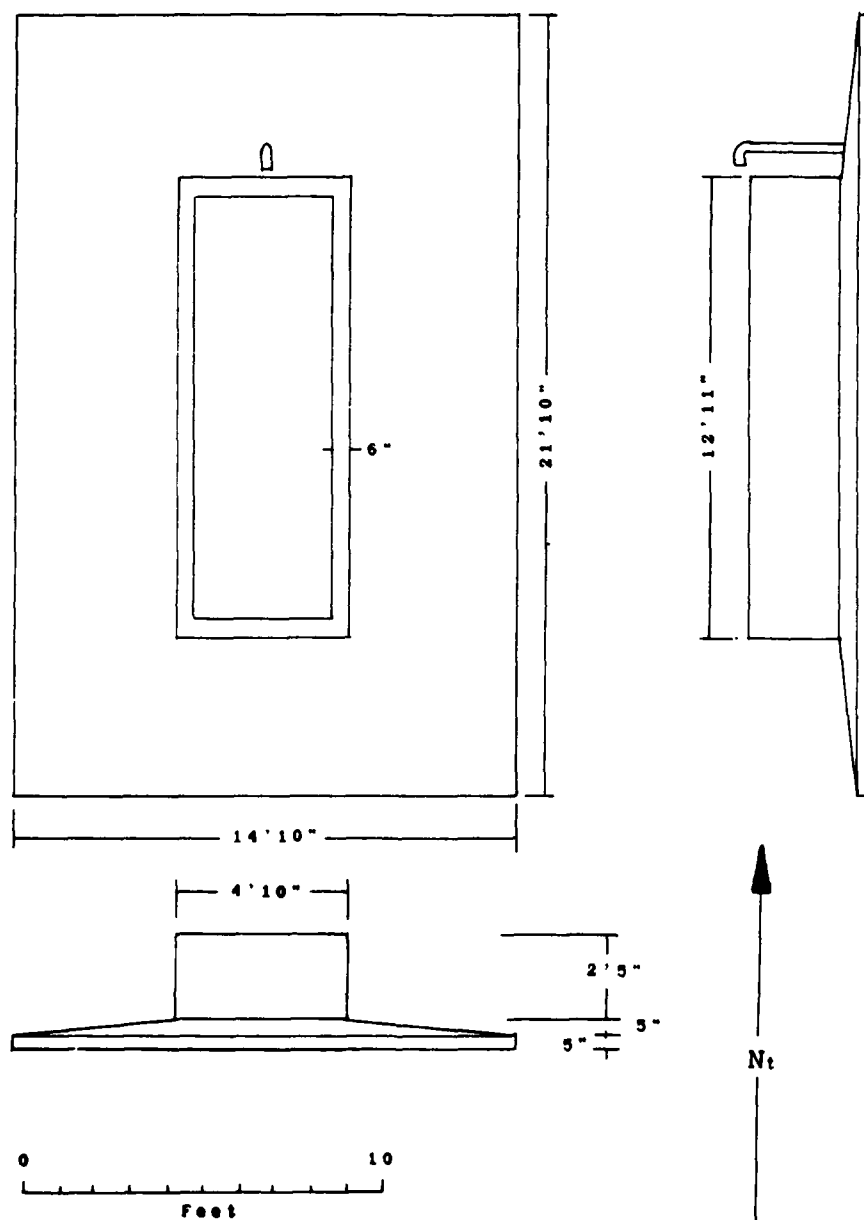


Figure 4.44. Structure 7 (Water Trough) map.

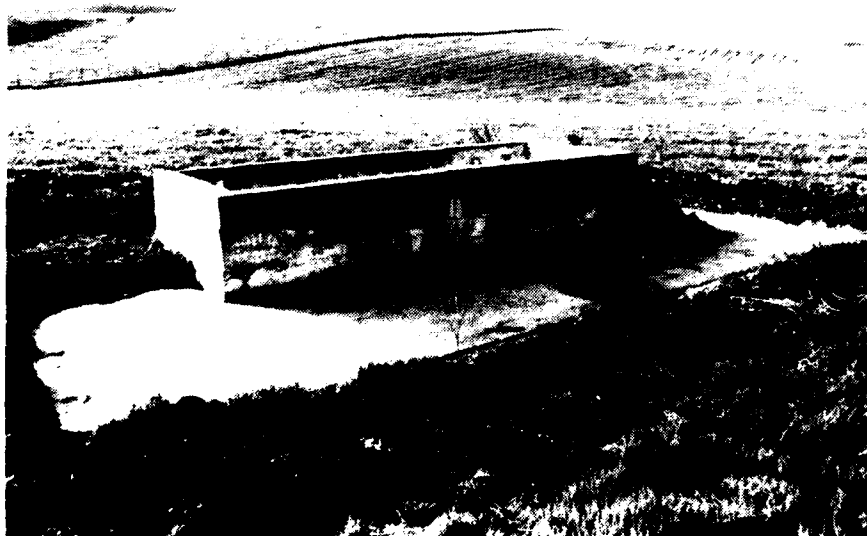


Figure 4.45. Structure 7 (Water Trough), looking northwest.

line, although the lines could no longer be traced. Interruptions in the line precluded determining whether the water trough (Structure 7) was supplied directly by this line or separately from Structure 8. A 1-inch pipe passes the east side of Structure 4 (a water tank foundation) and is presumed to have supplied the water tank, although direct evidence was not observed. The 1-inch line terminates in a tee which supplies a 3/4-inch line running roughly east-west. The eastern line appears to have supplied Structure 2 but terminates in a broken end short of the structure. The western line could only be followed for approximately 50 feet, there is no longer an obvious destination. The presence and angle of a Y joint, uphill of the valve box, suggests Structure 2 may originally have been supplied from this point. The suggestion presumes that Structure 4 and the 1 inch line were added after original installation of the 3-inch waterline. A valve (check or other type) at this location, would have allowed continual use of the line anywhere between Feature 1 and Structure 8, so long as the water tank contained water. When the line was pressurized at the well by a windmill or other pump all points would still receive service while the tank was filling, the flow along the line would simply be reversed. The same principle would have applied to the tank at Structure 4, allowing continuous access to the water supply whether the well pump was active or inactive, a necessary feature when dependent on wind-powered pumps and desirable for engine- or motor-driven pump systems as well.

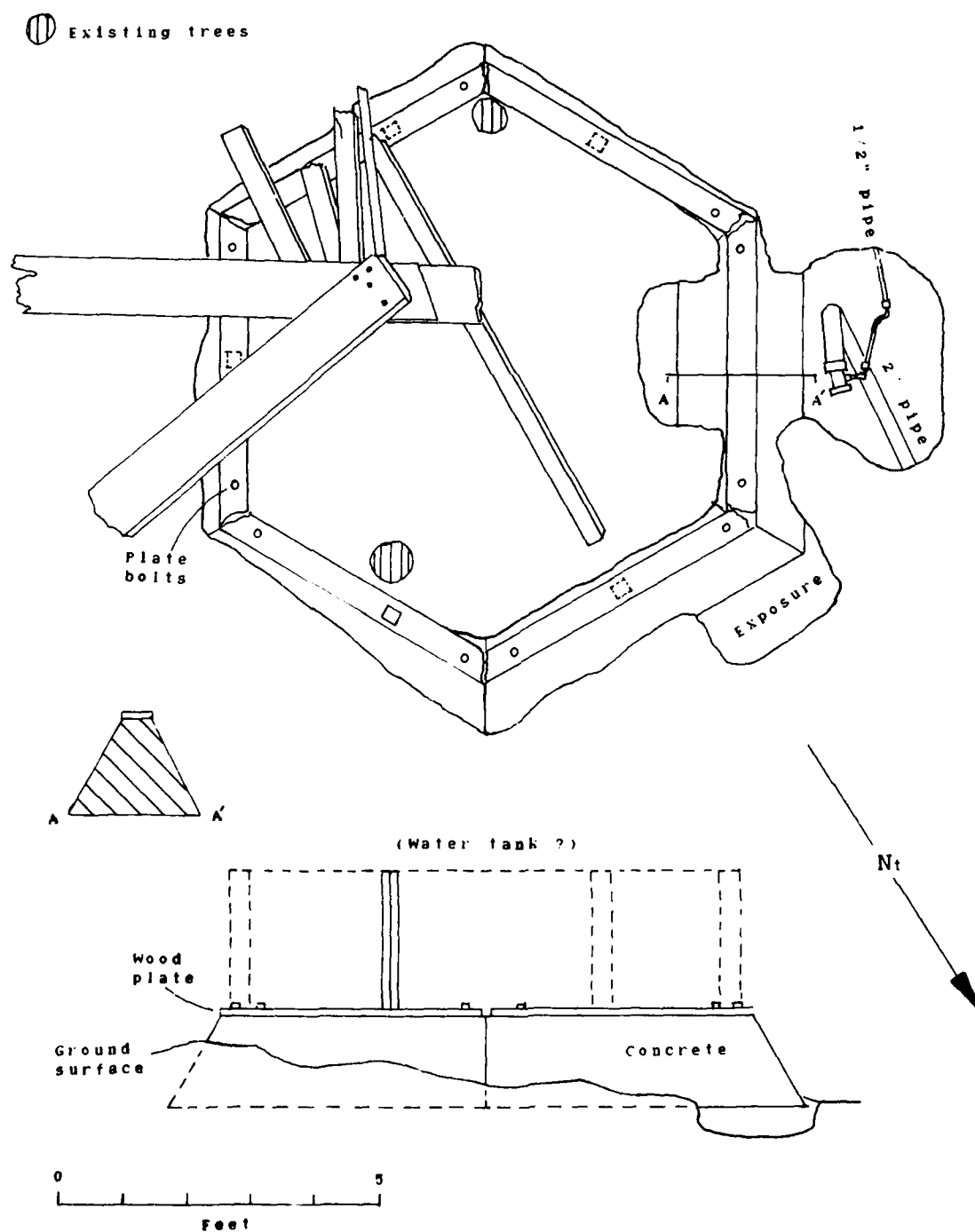


Figure 4.46. Structure 8 (Water Tank Foundation) map.



Figure 4.47. Structure 8, Foundation Detail, looking southeast.



Figure 4.48. Structure 8, foundation detail, looking southwest, note tree within foundation.



Figure 4.49. Feature 1, water distribution system valve, looking east-southeast.

Feature 3

Feature 3 is an incomplete fenced enclosure. The remaining portion of the western fence (Figures 3.1, 4.38, and 4.50) is identical to the remaining stanchions in Structure 6. It is considered likely that it was incorporated in this enclosure following removal from Structure 6. Feature 3 is therefore considered a late addition to the operation. Descriptions of placement and the presence of the stanchions suggest this enclosure most likely served as a calf pen (Lillibridge, personal communication), or possibly as a feeding station with an enclosure for feed storage. There is no indication, however, that a permanent cover or roof was ever present.

Corrals

Corrals shall not be located closer than 25 feet from the milking barn nor closer than 50 feet from the milk house and shall be properly graded and drained.

Feed racks, calf, bull, hog and chicken pens, horse stables, horse corrals, shall not be located closer than 100 feet from the milk house or 50 feet from the milking barn [State Dept. of Agriculture 1939:XXII].

The enclosure is barely over 10 feet from the milking barn, reducing the probability that it was used as a calf pen. The stanchions are 30-plus feet away, less than the 50 feet required for a feed rack. All portions of the enclosure are more than 100 feet from the milk house as required.

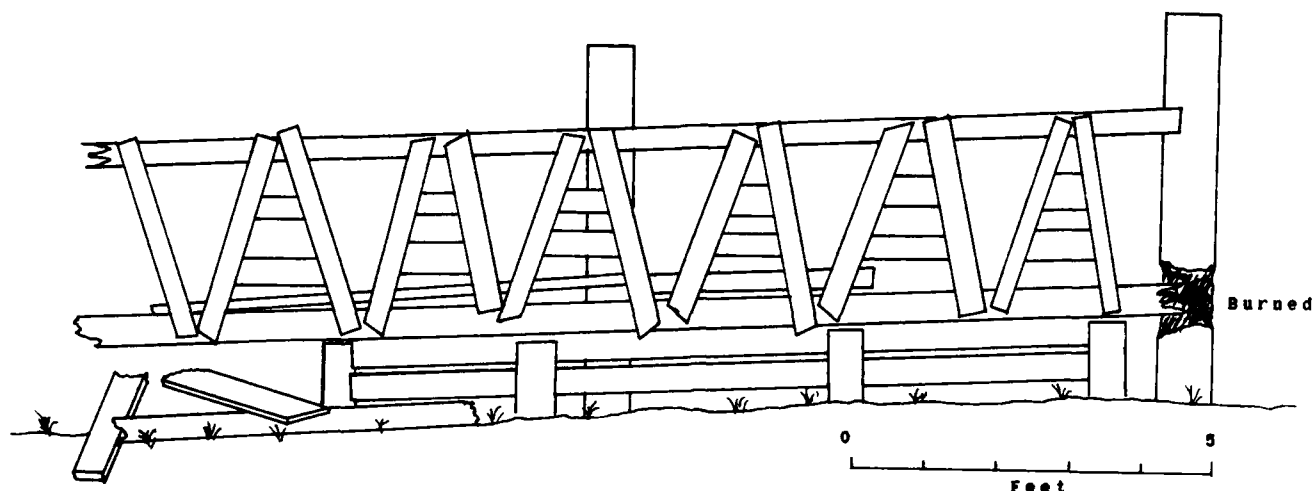
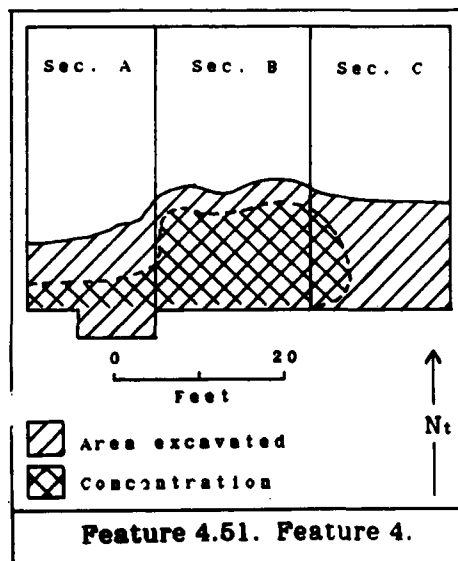


Figure 4.50. Feature 3, stanchion detail.

Feature 4 (Refuse Disposal Concentration)

Auger hole 19 revealed a subsurface deposit of historical refuse. The feature was explored by systematic shovel scraping which revealed three potential concentrations, one of which included evidence of burning. An area encompassing the apparent extent of the feature was divided into three sections of approximately 8 by 20 feet for a total area of approximately 24 by 20 feet with the sections labeled A, B, and C from west to east (Figures 3.1 and 4.51). As the feature was excavated it became evident that artifacts found on the surface of the northern half of the designated area were surficial only and resulted from dragging of the deposit. Cross-fitting of artifacts in the field provided convincing evidence that the three tentatively identified deposits were mixed. Artificial divisions of the feature were discarded and all items from the feature were collected as a single entity. Preliminary examination of materials in the field laboratory confirmed that many of the artifact fragments recovered from Feature 4 could be cross-fit with fragments recovered from Feature 5 (cellar within Structure 2) to the east, suggesting utilization as fill for Feature 5. It is probable that Feature 4 was



an extensive, partly buried deposit, which probably spanned two or more occupations of the site.

A wide variety of materials was recovered from Feature 4, principally household and personal items. Because of numerous cross-fitting items found in Feature 4 and in Feature 5, and because these features together produced more than 80 percent of artifactual materials recovered at this site, all of the cultural materials are discussed as a single entity in a separate section.

Feature 6

Feature 6 consists of the displaced remains of a stanchion section similar to that found at Feature 3 and within Structure 6. It is considered to have been a part of the stanchion which once stretched the full length of Structure 6. No explanation for its present location is presented.

5. CULTURAL MATERIALS

Ceramics

The assemblage is typical of a household in the first third of the twentieth century in the patterns, forms, and technology represented. This attribution is supported by the backstamps (Table 5.1), and the predominance of American-made ceramics over imports.

The Japanese items are predominately porcelain tea wares in the Ho-O pattern, offered at low cost in mail-order catalogues by the turn of the century. Other fragments, probably of American manufacture, have polychrome floral decal borders on porous earthenware bodies. The number of bowls as compared with plates suggests that soups, stews, or other moist foods were an important part of the diet. The assemblage suggests one or more single family units of modest circumstances, with the jugs and crocks (together with the glass canning jars) suggesting some measure of self-reliance in a rural setting. It is tempting to interpret that the cup fragment (Cat. No. 54) monogrammed with the letter "B" was a possession of the Billingsley family, especially since it was recovered from the buried trash deposit designated as Feature 4.

One family had a set, or assortment, of the California colored dinnerware popular in the 1930s. Most abundant was blue, although other pieces occurred in yellow, aqua, a pinkish-beige, and lime green. Only one of the bases was marked: a maroon saucer impressed almost imperceptibly with the Bauer insigne. Since this example was scarred at the stilt marks, it is possible that all of this dinnerware had been purchased as seconds at the nearby roadside pottery outlet in Prado (Greenwood and Foster 1987). This group was widely scattered over the surface, including the barn area, and may have belonged to the tenants who lived on the property in its last years of occupation.

Stoneware fragments found in the stairway fill of Structure 2/Feature 5 represent a tan No. 6 crock which was 12 inches in diameter and 13.5 inches high, with a rolled collar of 1.5 inches. A label printed in black on one side identified the seller and product: A-1 Hop & Malt Co. The company had six stores at the time, at various addresses in central and east Los Angeles. A similar base may have been a second example.

A stoneware jug (Cat. No. 158) was found in Feature 2 (within structure 6). It had a tan body, glossy dark brown slip from the sharply carinated shoulder to the mouth, and one handle. It is 10.5 inches high and 7 inches in diameter. Figure 5.1 was reproduced from a Bauer catalog, but similar jugs were also produced by Redwing Stoneware, Western Stoneware, and others in 1/4, 1/2, 1, and 2 gallon sizes (Viel 1987:162, 160; Martin and Cooper 1983:57, 63). There were

Table 5.1. Ceramic Marks at CA-RIV-3508-H

Manufacturer	Cat. No.	Date from-to	Description	Comment/Reference
DOMESTIC				
J.A. Bauer	32	1914-1962	Pitcher, blue	"Modern" pattern. Hayes 1979:n.p. Probably Bauer; impressed "Made in USA" Possibly Bauer; identical to 1 gallon size (Hayes 1979:26)
	12	1935-1936	Saucer, maroon	
	158		2 cups, white Stoneware jug	
Empire China Co.	69	1924	Earthenware plate	Molded rim. Lehner 1988:138
	149	1924	Earthenware plate	Base only. Lehner 1988:138
French China Co.	65	1898-1916	Earthenware soup bowl	Floral decal. Gates and Ormerod 1982:49b
	148	1916-1926	Earthenware	Base only. "Martha Washington" pattern. Gates and Ormerod 1982:47b
Edwin M. Knowles China Co.	22/120	1930-1948	Earthenware soup bowl	Floral decal, molded rim. Gates and Ormerod 1982:100c. Code 42-3
	7	1900-1948	Earthenware saucer	Floral decal, gilt edge. Gates and Ormerod 1982:99. Code: 31-2-11
	41	1925-1931	Whiteware bowl	Cream glaze, floral decal. Gates and Ormerod 1982:10. Code 29-2-8
	40	1925-1931	Whiteware saucer	Cream glaze, floral decal. Gates and Ormerod 1982:10. Code 29-2-1
	37	1910-1948	Whiteware bowl	Molded sides. Gates and Ormerod 1982:100. Code: 34-xxx
	157	1900-1948	Whiteware bowl	Cream glaze, floral decal. Gates and Ormerod 1982:99. Code: 30-2-5
	5	1872-1878	Earthenware plate	Gates and Ormerod 1982:116, same mark also used by J. Wyllie and Son 1874-1893, and Wm. Young and Sons 1870-1879.
Homer Laughlin	63	1905-1929	Earthenware plate	"Vlxxx" Gates and Ormerod 1982:126a
	150/151	1905-1929	Earthenware plate	Gates and Ormerod 1982:126
	1	1930-1969	Earthenware bowl	Red transfer, "Harvest" pattern. Gates and Ormerod 1982:129. Code: H 41 N8
	6	1910-1919	Earthenware saucer	Gold band. Gates and Ormerod 1982:129.
	14	1900-1960	Earthenware saucer	Molded and gilt rim. Gates and Ormerod 1982:136. Code: R 45 N6
	45	Aug. 1913	Earthen. oyster bowl	Gates and Ormerod 1982:129. Code: H 4 N
	125	1907-1925	Earthenware plate	"Hudson" in script. Gates and Ormerod 1982:134(114c)
Paxon/Vernon Kilns Taylor, Smith and Taylor	152	1920-1929	Earthenware, plate?	"Hudson" in block letters. Gates and Ormerod 1982:136
	60	1916-1928	Whiteware bowl	Base molded. Lehner 1988:489
	4	?	Earthenware plate	"Versatile," black design. This pattern, plus "Ovenproof" dated ca 1960 (Gates and Ormerod 1982:273), but this would be earlier, unless intrusive.
	44	1917-1925	Earthenware plate	"Avona" pattern. Gates and Ormerod 1982:269b
	52	1917-1925	Whiteware plate	Molded rim. Gates and Ormerod 1982:269b
West End Pottery Co.	43	ca 1910	Earthen. oval server	Molded rim. Gates and Ormerod 1982:316b
	139/144	ca 1910	Earthenware	Base only Gates and Ormerod 1982:316b
H.R. Wyllie China Co.	55, 56	1910-1920s	Earthenware plates	Two examples. Lehner 1988:529

Table 5.1 (continued)

Manufacturer	Cat. No.	Date from-to	Description	Comment/Reference
JAPANESE IMPORTS				
"Made in Japan" in a circle	34, 35	1921-1940	Porcelain	Blue Willow pattern. Minimum of two cups and one saucer. Stitt 1974:176
"Japan" with flowers and calligraphy in blue	96	1921-1940	Porcelain saucer	Blue transfer print. Stitt 1974:176
"Made in Japan" in black	36	1921-1940	Earthenware bowl	Hand painted floral under glaze, crazed. Also impressed mark. Stitt 1974:176
"Made in Japan" in black	46	1921-1940	Porcelain	From mends, minimum of two saucers and one cup. Hand painted scenic. Stitt 1974:176
"Made in Japan" in green	49	1921-1940	Porcelain saucer	Gold band. Stitt 1974:176
"Made in Japan" in red	53, 97	1921-1940	Porcelain small bowl	Hand painted floral over glaze. Stitt 1974:176
"Japan" in red	109	1921-1940	Porcelain saucer	Hand painted scenic. Stitt 1974:176
OTHER				
John Edwards, England	106	1880-1900	Earthenware	Godden 1964:231
A. J. Wilkinson, England	59	ca 1896	Earthenware plate	Godden 1964:672
Société Céramique, Maestricht, Holland	42/48	1887+	Earthenware cup	All of this group, hand painted yellow and green floral. Kovel 1986:56m
	64	1887+	Earthenware plate	
	94	1887+	Earthenware bowl	
"...se La Espiga De Oro"	2	?	Earthenware bowl	Hand painted wheat and fruit. No data

four additional small porcelain fragments representing household items which were decorative in nature. Cat. Nos. 24 and 126 are parts of figurines; the former is unglazed, in the form of a green frog's head with a gaping mouth, wearing a yellow baseball cap. The latter is painted and glazed, but too small to define. Cat. No. 102 is glazed a lustrous, almost iridescent brown, and could be the knob of a sugar bowl. Cat. No. 146 is half of a brown porcelain miniature mug with handle which would have been about 3 cm high, if whole; it might be a plaything or a display item.

An unidentified white porcelain lid or jar cap (Cat. No. 81) is 2.5 cm in diameter with knurled edge. The interior is embossed "K.H./Germany." The product was probably cosmetic.

JUGS, BROWNGLAZED (See Cut at right)

Another item of interest was a fragmentary cup of white earthenware, decorated with a polychrome floral decal, gilt rim, and the monogram letter "B".

Height—

1 pt.—5 inches
1 qt.—6½ inches
½ gal.—9 inches
1 gal.—10½ inches
2 gal.—12½ inches
3 gal.—15 inches
5 gal.—17 inches



Figure 5.1. Stoneware jug
(Hayes 1925:6).

Glass

A large quantity of bottle glass was recovered from the site. A majority of the examples observed came from the fill in Feature 5, from which only a representative sample of the bottle glass present was collected for identification. A sampling bias toward different, or unique (to the deposit) items is apparent in quantification figures. Canning jars, for instance, are not proportionately represented, as evidenced by the larger number of canning lid liners reported. Table 5.2 summarizes manufacturers marks, product identifications, and usage dates by provenience. A visual depiction of the date ranges for both ceramics and glass appears as Figure 5.2.

Bottles

Canning Jars and Lids

The 44 unbroken canning jar lids include the following types: 16 examples "Genuine Zinc Cap for Ball Mason Jars"; 7 examples "Boyd's Genuine Porcelain Lined Cap" (of this group, the centers are either plain, or embossed 1, 2, 3, 4, or 5); two examples "Genuine Boyd Cap for Mason Jars;" 4 examples are unmarked, and 15 could not be adequately described for identification. No data were found on different brands of lid liners, they were in common use for nearly the entire period of site occupation. Three vacuum seal dome-type canning lids were also recovered along with a single canning lid screw ring. Two of the dome-type lids are for widemouth jars. Twenty-eight canning jars were tentatively identified. All except one have (semi)automatic bottle machine finishes; that example has an earlier "bust and grind" type screw finish. Fifteen are wide-mouth type canning jars. Ten of the jars have makers' marks (Table 5.2) with dates ranging from 1906 to 1964+; most date ca 1915 through 1933.

Beverages

Thirteen soda bottles were identified, of which nine could be identified by product, distributor, or manufacturer. Three examples of clear glass soft drink bottles were recovered from the upper fill of Feature 2, in the 0-20 cm level; a fourth example was recovered from Feature 4. They are embossed above and below a clear band around the midsection, where a paper label would have been applied. The word "GLOBE" appears within a depiction of a globe on the bulged

Table 5.2. Glass Marks at CA-RIV-3508-H

Prov	Qty	Manufacturer	Contents	From	To	Reference
S2c	1	Anchor Hocking Glass Corp.		1938	----	Toulouse 1971:46
F5	1	Antrol	Insecticide			
S2	1	Armstrong Cork Co., Glass Div.		1938	1969	Toulouse 1971:24
S2c	3	Armstrong Cork Co., Glass Div.		1938	1969	Toulouse 1971:24
S2c	1	Armstrong Cork Co., Glass Div.	Medicinal	1938	1969	Toulouse 1971:24
S2c	1	Ball Bros. Glass Mfg. Co.	Canning	1906	----	Toulouse 1971:66-67
F2 0-20	1	Best Foods, Pat. Design 80918	Food	1930	----	Tod 1977:171
S2a	1	Bishop's Peanut Butter	Food			
S2c	2	Blecho Co.	Bleach			
S2c	1	Bosco	Beverage			
S2	3	Brockway Machine Bottle Co.		1925	1930	Toulouse 1971:59
S2	1	Brockway Machine Bottle Co.	Canning	1925	1930	Toulouse 1971:59
S2c	1	Brockway Machine Bottle Co.		1925	1930	Toulouse 1971:59
F4	2	Bromo Seltzer, Emerson Drug Co., Baltimore	Medicinal	1889	----	Fike 1987:111; Devner 1968:17
S2c	1	Carr-Lowrey Glass Co.		1920	1963	Toulouse 1971:135
F5	1	Castoria, C. H. Fletcher	Medicinal	ca 1890	----	Fike 1987:162
S2c	1	Castoria, C. H. Fletcher	Medicinal	ca 1890	----	Fike 1987:162
S2c	1	Circle A Brand Beverages	Soda			
S2c	1	Clorox	Bleach			
F2 0-20	1	Clorox	Bleach	1929	1939	Clorox n.d.
S6 sur.	1	Columbine Glass Company Inc.		1970	----	Toulouse 1971:125
S2c	1	COMALAC/ONE QUART/REG. CAL				
S2	1	Dad's Root Beer (Litho)	Soda	1937	----	Riley 1972:268
S2c	1	Design Patent 89237		1879		Tod 1977:171
S2c	1	Design Patent 921413		1880		Tod 1977:171
F4	5	Diamond Glass Co., Royersford		1924	----	Toulouse 1971:550
F4	1	Diamond Glass Co., Royersford	Medicinal	1924	----	Toulouse 1971:550
		Listerine				
F2 40-60	1	Diamond Glass Co., Royersford	Medicinal	1924	----	Toulouse 1971:550
		Listerine				
F2 0-20	1	"FAHRNEY/CHICAGO"	Medicinal	ca 1900	1984+	Fike 1987:58
S2c	1	Fairmont Glass Works, Inc.		1945	1960	Toulouse 1971:201
S2c	2	"FEDERAL LAW FORBIDS ..."	Spirits	1933	1964	Munsey 1970:126
S2c	1	"FEDERAL LAW FORBIDS ..."	Spirits	1933	1964	Munsey 1970:126
		... "Park Thio ... Blended Whiskey				
S2c	1	"FEDERAL LAW FORBIDS ..."	Spirits	1933	1964	Munsey 1970:126
		Four Roses				
S2c	1	Goodwin's Magic-Cloud	Ammonia			
S2c	13	Glass Containers Corp.		1945	----	Toulouse 1971:220
S2c	1	Glass Containers Corp. Los Angeles Pharmacal	Medicinal	1945	----	Toulouse 1971:220
F2 0-20	3	Globe	Soda	ca 1900	1920	Riley 1972:140,265,289

Table 5.2 (continued)

Prov	Qty	Manufacturer	Contents	From	To	Reference
F4	1	Globe	Soda	ca 1900	1920	Riley 1972:140,265,289
S2c	20	Hazel-Atlas Glass Co.		1920	1964	Toulouse 1971:239
S2c	2	Hazel-Atlas Glass Co.	Condiment	1920	1964	Toulouse 1971:239
S2c	2	Hazel-Atlas Glass Co.	Canning	1920	1964	Toulouse 1971:239
S2c	1	Hazel-Atlas Glass Co. Libby's	Condiment	1920	1964	Toulouse 1971:239
F2 0-20	2	Hazel-Atlas Glass Co.		1920	1964	Toulouse 1971:239
F2 20-40	2	Hazel-Atlas Glass Co.	Condiment	1920	1964	Toulouse 1971:239
F4	1	Hazel-Atlas Glass Co.	Canning	1920	1964	Toulouse 1971:239
U3 0-20	1	Hazel-Atlas Glass Co.	Medicinal	1920	1964	Toulouse 1971:239
F2 0-20	1	Heinz/Hazel-Atlas Glass Co.	Condiment	1920	1964	Toulouse 1971:239
F2 20-40	7	Heinz/Hazel-Atlas Glass Co. (6 short, 1 tall, octagonal)	Condiment	1920	1964	Toulouse 1971:239
S2	1	Kerr, Self-Sealing	Canning	1915	1940	Toulouse 1969:43
S2c	1	Latchford-Marble Glass Co.		1939	1957	Toulouse 1971:332
F2 0-20	1	Long Beach Glass Co.	Canning	1920	1933	Toulouse 1971:318
F4	2	Long Beach Glass Co.		1920	1933	Toulouse 1971:318
S2	1	Maywood Glass Co., Hamms	Beer	ca 1988		Toulouse 1971:257
S2	1	Maywood Glass Co., Regal Pale	Beer	ca 1988		Toulouse 1971:257
S2c	1	Maywood Glass Co.		ca 1980		Toulouse 1971:257
S2c	4	Maywood Glass Co.		ca 1988		Toulouse 1971:257
F5	1	NESTLE				
S2c	1	Obear-Nester Glass Co.		1915	----	Toulouse 1971:372
S2c	1	Obear-Nester Glass Co. Hires Beverages	Beverage	1915	----	Toulouse 1971:372
F4	1	Obear-Nester Glass Co.		1915	----	Toulouse 1971:372
S2c	1	Oil City Glass Bottle Co.		1930	1952	Toulouse 1971:398
F4	6	Owens Bottle Co.		1911	1929	Toulouse 1971:393
F4	1	Owens Bottle Co.	Condiment	1911	1929	Toulouse 1971:393
F4	1	Owens Bottle Co. H. J. Heinz 57		1911	1929	Toulouse 1971:393
S2	4	Owens Illinois Glass Co.		1929	1954	Toulouse 1971:403
S2	1	Owens Illinois Glass Co.		1929	1945	Toulouse 1971:403
S2	1	Owens Illinois Glass Co. Duraglas		1940	1954	Toulouse 1971:170, 403
S2	2	Owens Illinois Glass Co.		1945	----	Toulouse 1971:395,403
S2	1	Owens Illinois Glass Co. Bishop's Peanut Butter (Hydrogenated)	Condiment	1945	----	Toulouse 1971:395, 403
S2	1	Owens Illinois Glass Co. Antrol Ant Killer, A. S. Boyle Co. Distributors	Insecticide	1945	----	Toulouse 1971:395, 403
S2	1	Owens Illinois Glass Co.		1954	----	Toulouse 1971:403

Table 5.2 (continued)

Prov	Qty	Manufacturer	Contents	From	To	Reference
S2c	1	Owens Illinois Glass Co. Antrol Ant Killer, A. S. Boyle Co. Distributors	Insecticide	1945	----	Toulouse 1971:395, 403
S2c	30	Owens Illinois Glass Co.		1929	1954	Toulouse 1971:403
S2c	7	Owens Illinois Glass Co. White Magic	Bleach	1929	1954	Toulouse 1971:403
S2c	1	Owens Illinois Glass Co. Clorox	Bleach	1929	1954	Toulouse 1971:403
S2c	1	Owens Illinois Glass Co. Vano	Starch	1929	1954	Toulouse 1971:403
S2c	1	Owens Illinois Glass Co.		1929	1945	Toulouse 1971:403
S2c	2	Owens Illinois Glass Co. Duraglas		1940	1954	Toulouse 1971:170, 403
S2c	1	Owens Illinois Glass Co. Pluto Water, America's Physic	Medicinal	1929 ca1910	1954 1920+	Toulouse 1971:395,403 Devner 1968:76
S2c	2	Owens Illinois Glass Co. Duraglas		1945	1954	Toulouse 1971:170,395
S2c	1	Owens Illinois Glass Co. Duraglas Cowboy Kist Bottling Co, Corona	Soda	1945	1954	Toulouse 1971:395, 403
S2c	1	Owens Illinois Glass Co. Duraglas Canada Dry Gingerale	Soda	1945	1954	Toulouse 1971:395, 403
S2c	3	Owens Illinois Glass Co. Duraglas; Patent 2076124		1940	1954	Toulouse 1971:170,403 Tod 1977:171
S2c	5	Owens Illinois Glass Co.		1945	1954	Toulouse 1971:395,403
S2c	5	Owens Illinois Glass Co.		1954	----	Toulouse 1971:403
S2c	1	Owens Illinois Glass Co. Mary Ellen	Condiment	1954	----	Toulouse 1971:403
S2c	1	Owens Illinois Glass Co. Squirt	Soda	1954	----	Toulouse 1971:403
S2c	1	Owens Illinois Glass Co.		1960	----	Toulouse 1971:395,403
S6	1	Owens Illinois Glass Co.		1929	1954	Toulouse 1971:403
F2 20-40	1	Owens Illinois Glass Co.		1929	1954	Toulouse 1971:403
F2 0-20	1	Owens Illinois Glass Co.	Beverage	1929	1954	Toulouse 1971:403
F2 0-20	1	Owens Illinois Glass Co.	Medicinal	1929	1954	Toulouse 1971:403
F2 0-20	1	Owens Illinois Glass Co.	Canning	1929	1954	Toulouse 1971:403
F2 0-20	1	Owens Illinois Glass Co.	Canning	1945	----	Toulouse 1971:395,403
F4	2	Owens Illinois Glass Co.		1929	1954	Toulouse 1971:403
U1 0-10	1	Owens Illinois Glass Co.	Medicinal	1929	1954	Toulouse 1971:403
U16 0-20	1	Owens Illinois Glass Co.		1929	1954	Toulouse 1971:403
U22 0-20	1	Owens Illinois Glass Co.		1929	1954	Toulouse 1971:403
U24 0-20	1	Owens Illinois Glass Co.		1929	1954	Toulouse 1971:403
F4	1	Pacific Coast Glass Co.		1925	1930	Toulouse 1971:414
S2c	1	Parker	Ink			
S2c	2	Phillips Milk of Magnesia	Medicinal	1906	----	Fike 1987:141
S2c	1	Design Patented 92185		1934	----	Tod 1977:171

Table 5.2 (continued)

Prov	Qty	Manufacturer	Contents	From	To	Reference
S2	1	Pierce Glass Co. Patent 2097812		1905	----	Toulouse 1971:412
F4	1	Pluto Water, America's Physic	Medicinal	1937	----	Tod 1977:171
S2	1	POND'S	Cosmetic	ca 1910	1920	Devner 1968:76
F2	1	Ponds	Cosmetic			
F5	2	Purex	Bleach			
S2c	1	Purex				
F2	1	Resinol Chemical Co., Baltimore	Medicinal	1900	1917	Devner 1968:80
S2c	1	Sodium Phosphate	Medicinal			
F2 0-20	1	Southern Glass Co.	Canning	1917	1931	Toulouse 1971:457
F2 20-40	2	Southern Glass Co.	Condiment	1917	1931	Toulouse 1971:457
S2c	2	Thatcher (Glass) Mfg. Co.		1900	----	Toulouse 1971:496
F2 20-40	1	Turner Bros. Co.		1910	1929	Toulouse 1971:490
S2c	1	Vermont Maid Syrup				
S2	1	Vick's Vaporub	Medicinal	>1981?		Fike 1987:184
F2 0-20	1	Vick's Vaporub	Medicinal	>1981?		Fike 1987:184
U3 0-20	1	Vick's Vaseline	Medicinal			
F5	1	T. C. Wheaton Co.		1888	----	Toulouse 1971:527
S2	1	T. C. Wheaton Co.		1946	----	Toulouse 1971:527
S2	1	T. C. Wheaton Co. (as for insulin shots)	Medicinal	1888	----	Toulouse 1971:527
S2c	1	T. C. Wheaton Co.		1888	----	Toulouse 1971:527
S2c	1	White Magic	Bleach			
S2c	1	Woodbury Glass Works, Woodbury		ca 1904	1916	Toulouse 1971:539

shoulder, "GLOBE" is also embossed on the base, and the legend "Globe Bottling Co. LA Registered 6 1/2 Fl. Ozs." surrounds the heel. Other than the label band, embossments, and crown finish, the entire sidewall and base is textured with a pebbly finish. Globe was a private brand bottler producing soft drinks in the 1920s (Riley 1972:289). Contents of 6-7 ounces predominated during the decades from 1900-1920, and during the 1920s, there were many such patented, designed bottles for branded soft drinks (Riley 1972:140, 265). These examples are comparable to other contemporary sodas described and illustrated from the nearby town of Prado (Greenwood and Foster 1987:81-83, 146). Additional soda bottles include a "Circle A. Brand Beverages" from Structure 2; a "Dad's Root Beer" lithographed label from Structure 2; a "Hires Beverages" bottle from Structure 2, bottle manufactured by Obear-Nester Glass Co. after 1915 (Toulouse 1971:372); a bottle from the Cowboy Kist Bottling Co., Corona, California under license from the Citrus Products Co., Chicago, Illinois, manufactured by Owens Illinois Glass Co. between 1945 and 1954 (Toulouse 1971:395, 403); a "Canada Dry Gingerale" bottle manufactured by Owens Illinois Glass Co. between 1945 and 1954 (Toulouse 1971:395, 403); and a "Squirt" soda bottle manufactured by Owens Illinois Glass Co. after 1954 (Toulouse 1971:403). A total of 15 crown caps were also recovered.

Figure 5.2. Ceramic and Glass Dates

Four liquor bottles were positively identified. All included the inscription "Federal Law Forbids Sale or Reuse of This Bottle," the use of which was mandated on liquor bottles from 1933 to 1964 (Munsey 1970:126). One of the bottles was also embossed "Four Roses;" a second bottle was embossed "Park Thio... Blended Whiskey."

Two beer bottles, one "Hamms" and one "Regal Pale," were recovered from the surface of Structure 2. Both bottles were manufactured by Maywood Glass Co. ca 1958 (Toulouse 1971:257).

Several milk bottles, or fragments thereof, were lithographed with the names of at least three local dairies: Clairemont/Guernsey, Gree..., and Tods Dairy.

Foods and Condiments

Eighteen bottles or jars were identified as condiment containers based on size and shape. Two widemouth, screw-finish bottles were identified by labels as having contained "Bishop's Peanut Butter (Hydrogenated);" one of these also had an Owens Illinois Glass Co. mark dating after 1945 (Toulouse 1971:395, 403). Additional bottles and jars undoubtedly contained similar products but the contents could not be positively identified.

Medicinal

Twenty-one bottles were identified as medicinal containers. The contents could be identified for many of these bottles. Products include: "RESINOL," by the Resinol Chemical Co., Baltimore, recovered from Feature 2; a milk glass, cylindrical, jar with a screw top, measuring 1 15/16 x 1 11/16 inches, skin ointment; use dates 1900-1917 (Devner 1968:80). Two "BROMOSELTZER," from Emerson Drug Co., Baltimore, recovered from Feature 4; a bottle measuring 3 7/8 x 1 5/6 inches from a cup bottom mold, no base marks (see Fike 1987:111). Two "FLETCHER'S CASTORIA" bottles, one from Structure 2 and one from Feature 5 (within Structure 2), made by H. C. Fletcher after ca 1890 (see Fike 1987:162). Two "LISTERINE" bottles, one from Feature 2, 40-60 centimeters, and one from Feature 4, both bottles were manufactured by Diamond Glass Co. after 1924 (Toulouse 1971:550). Two "PHILLIPS MILK OF MAGNESIA" bottles were recovered from Structure 2; Fike (1987:141) indicates manufacture of this product after 1906, and the design patent on the bottles (92185) suggests these bottles were manufactured after 1934 (Tod 1977:171). A single "PLUTO WATER/AMERICA'S PHYSIC" bottle was recovered from Feature 4. This product was popular from ca 1910 to ca 1920 (Devner 1968:76). Two "VICK'S VAPORUB" (Feature 2, 0-20 centimeters) and one "VICK'S VASOLINE" (Unit 3, 0-20 centimeters) jars were recovered. The Vick's name was applied to the Richardson's Croup and Pneumonia Salve after its purchase in 1905 (Devner 1968:97); a similar product name (Vick's Va-tro-nol) was introduced with Vick's Medicated Cough Drops in 1931 (Fike 1987:185). Medicinal products were also represented by three glass medicine droppers.

Cleaning Products

Fifteen bottles of cleaning products were identified as to brand and contents. These include 13 bleach bottles: two "Blecho Co."; three "Clorox," one dating 1929-1939 (Clorox n.d.), and one dating 1929-1954 (Toulouse 1971:403);

eight "White Magic," seven of which date 1929-1954 (Toulouse 1971:403); and one "Purex" bottle. Also recovered were one ammonia bottle, brand name "Goodwin's Magic-Cloud," and one "Vano" starch bottle, manufactured by Owens Illinois Glass Co. 1929-1954 (Toulouse 1971:403).

Other Domestic Glass

Four fragments of a child's dish (Cat. No. 66) would have been 7 1/2 inches in diameter if whole. Made of clear glass, it has nearly vertical sidewalls 1 3/4 inches high, and a broad flat brim which is embossed with the letters of the alphabet and numerals to nine. Most of the base is missing, but a fragment was embossed with grass, legs of a dog, and probably human figures.

A clear pressed glass container in the form of a vehicle (Cat. No. 72) also came from Feature 4. The shape seems to represent an old delivery van or possibly a boxy passenger vehicle, with four doors. It probably had a lid and could have been a candy jar. The base is embossed "V.G.C.O./xxJNET.PA."

Fragments of five glass mugs (with handles) were recovered; three are represented by handles recovered from Feature 2 (within Structure 6). Three glass, 6-panel tumblers were found in Feature 2 (within Structure 6); one of three additional glass tumblers is decorated with painted birds (Cat. No. 156).

A glass ornamental bowl (clear with molded panel wall) came from Feature 4.

Other Household/Personal Items

Cutlery/Kitchen

Two teaspoons were recovered inside Structure 2, but neither can be precisely identified or dated. Cat. No. 26 is a simple shape whose handle tapers to a point and lacks any embellishment other than a single line parallel to the edge. In form, it resembles known patterns called Vesta, ca 1895, or Lufberry, ca 1915 (Hagan 1981:68, 120). The back is stamped "ARNBE" in a lozenge, followed by "1/2 Overlay." No such manufacturer has been found; it is tempting to speculate whether the piece was made by Rogers and Brother, who operated from 1858 to 1898, when the company merged in International Silver Co. (Kovel and Kovel 1968:0340). They might have used the homonym R-and-B to mark products of a lesser quality, or those made for resale by Sears or other outlets.

The second example (Cat. No. 27) is the bowl of a composite spoon which would have had a handle of bone, ivory, cocobola, or other material. The bowl is more rounded than modern forms, 2.9 cm wide by 4.0 cm long, and very thin. The shank, serrated to attach into the handle, is stamped "E.P.N.S./U.S.A." The lettering does not denote a manufacturer, but stands for electroplate on nickel silver (Cohen 1974:12.).

Kitchen utensils include a spatula, serving fork, and a 3-inch diameter wire mesh strainer. All three items are made of ferrous metal and appear to have been plated to resist rust at one time. Five cooking pots were recovered: a

sheetmetal pot, 6 inches in diameter, with a formed sheetmetal handle; a white enamelware pot, 5 1/2 inches diameter and 3 inches high; a white enamelware pot with a green rim, 9 1/2 inches in diameter and 6 inches high; a pot 9 inches in diameter and 4 inches high; and an aluminum pot (no data). Two enamelware bowls, one 9 inches in diameter and 3 1/2 inches high, and one with a grey splatter finish 12 inches in diameter and 3 1/2 inches high. Four 8-inch diameter aluminum pie plates were recovered from Feature 5, along with an aluminum measuring cup. An aluminum loaf pan, 4 by 8 by 3 3/4 inches, a rubber dish drainer mat, and a melmac-type plate marked "TROJAN/USA/WARE" were also found along with a steel wool pad and scraps of aluminum foil.

Toys

Five glass marbles (Cat. No. 17) were recovered within Structure 2. All are modern, machine-made types. The dimensions and colors are as follows:

- a. 2.5 cm Opaque, white with orange.
- b. 1.8 cm Opaque, white with dark blue and orange; possible polar scars.
- c. 1.6 cm Opaque, white with orange.
- d. 1.6 cm Opaque, white with green and yellow swirl.
- e. 1.5 cm Transparent, clear medium blue.

Fragments of dolls' dishes were numerous. Batched under Cat. No. 77 from Feature 4 were white porcelain fragments, unmarked and undecorated, representing a miniature plate, saucer, bowl, and cup. From the same location came a plate fragment of the same size with an embossed border (Cat. No. 155). A white porcelain fragment was observed within Trench 3. A smaller, earthenware plate from Structure 2 (Cat. No. 30) is 3.0 cm in diameter, with the buff body and orange glaze typical of lead-glazed wares made in North Mexico. Two fragments of a doll's head (Cat. No. 76) are painted bisque porcelain but too small to indicate size or type.

Additional toys include a cast-iron toy pistol; the scattered remains of a small tricycle, corroded beyond further description; and the remains of a sheet-metal toy truck, once approximately 6 inches in length.

Recreation

A quantity of recently expended shot shell and .22 caliber shell cases were present on the surface of the site, along with the remains of many clay pigeons. These artifacts are the result of the present use of the area for bird dog training and recreational shooting. Consequently they were not identified further nor quantified, with the exception that a single "PETERS/.45 COLT" shell case was recorded. The .45 Colt cartridge was introduced in 1873 and was a U. S. Army official handgun caliber from 1875 to 1892. The original cartridges were loaded with black powder; they are still available with smokeless powder (Barnes 1976:172).

Smoking

A median, burned fragment of stem, just above the bowl, from a single clay smoking pipe (Cat. No. 128), was recovered. There were no marks on this

artifact. In addition, four flat oval, hinged lid, pocket tobacco tins were identified. Two of the tins were recovered from Feature 5; one bears remanent lithography identifying the make as "Prince Albert."

Shoes

The remains of several sizes and types of footwear were recovered, primarily from Features 4 and 5. A "Superlite Fitrite" man's leather work boot, and a rubber boot are the only complete examples. Both types of boot would be expected on a working dairy. Two shoe heels, one rubber and one leather, were found, along with four shoe soles; three sizes of leather soles, a child's size, a narrow (woman's?), and a large (man's?), and one composition sole of indeterminate size.

Additional leather or related items include 1-inch wide leather belt fragments, a 1 1/2-inch wide leather belt; and a ferrous metal belt buckle.

Buttons and Jewelry

Buttons were few and diverse. The largest (Cat. No. 28), 2.5 cm in diameter, is made of a composite, nonorganic material. It has a "tire rim" and slightly convex center on the exposed surface. There are four perforations, biconically drilled, with a centering hole on the reverse. Dark brown-black in color, it resembles fasteners used on coats. Two shell buttons are fish-eye types with two holes. The smaller (Cat. No. 29) is 1.4 cm in diameter and crudely made. The larger (Cat. No. 101) is 1.8 cm and more regular in shape and finish. Probably a button, but not certainly, is a very elaborate rose carved in ivory or bone (Cat. No. 85), 2.5 cm in diameter and 1.2 cm thick. The back side has a rim surrounding a hollow area which could have contained a cloth wad or other means for attaching; remnants of fine fiber were present within this depression.

Two glass beads (Cat. No. 25) were recovered within Structure 2. One is a bright, glossy pink, 1.8 cm long, biconical and faceted. It is perforated for suspension through one of the pointed ends, and not to be strung as a tubular bead. The other is cobalt blue, 0.5 cm in diameter and 0.2 cm thick. It is irregular in shape, and flattened across the perforation on both sides.

Five pants-type rivets, one marked B-L Co.; and two rivet buttons, one marked "HOWARD/BRAND," and one marked C.G.&Co, were recovered from the deposits at Features 4 and 5. A garter snap was found in the vicinity of the northwest corner of Structure 2.

Subsistence

Cans

A large quantity of cans was recovered, principally from the fill in Feature 5. Only a representative sample of the cans present in Feature 5 was collected for examination. Canning jars and lids are discussed separately under glass, above. A total of 75 crimp (sanitary) cans in a variety of general food

containers sizes was recorded; 62 of these came from Feature 5. Six rectangular 2-piece redrawn fish tins measuring 3 by 4 1/8 by 7/8 inches, with key open lids, were recorded. One was embossed "NORVEGE" (Norway); four came from Feature 5. Four tapered rectangular meat tins, key-opened, were collected from Feature 5, approximate size 12 ounces. Forty-six 2 3/8 by 2 1/2 inches diameter, solder-seam milk tins were recorded; 43 were from Feature 5. A single 4-by-3-inch diameter, solder-seam milk tin was collected; this size dates after 1931 (Fontana and Greenleaf 1962:75). Two 1-gallon size crimp paint cans with multiple friction lids were recovered from Feature 5 along with a single lid. Seven can-opening key strips were collected; the size is compatible with one or two pound coffee or shortening cans. Following data recordation in the field, all of the cans were discarded on site (Figure 3.1).

Shell

Isolated fragments of marine shell occurred, particularly within the fill of the stairway (Feature 5), mixed with the contents of Feature 4, and on the surface. Species recognized include the following:

Chione undatella and C. californianus

Commonly sold as hard-shell cockles in the markets of Los Angeles and San Diego.

Haliotis cracherodii and H. rufescens

Black and red abalone, respectively; commercially available during site occupation.

Astraea undosa (small juvenile)

Wavy top shell.

Argopecten aequisulcatus

Speckled scallop.

Tivela stultorum

Pismo clam; commercially available during site occupation.

Protothaca staminea

Pacific littleneck clam, also referred to as rock cockle; commercially available during site occupation.

Fissurella volcano

Keyhole limpet or volcano shell.

These were almost exclusively single examples of each species, and either on the surface or from a disturbed, mixed context. There were no artifacts or other indications of a prehistoric presence. These specimens might represent a collection.

Bone

More than 90 percent of the bone recovered from the site came from the Feature 5 fill (within Structure 2). Nearly all of the bone is from cattle.

Much of the bone is broken; some of it is also burned. Specifically identified fragments follow:

Scattered in the vicinity of Structure 1:

One saw cut scapula fragment, as for thick chuck (blade) roast, 2 1/8 inches thick.

One saw cut rib, as for short ribs, 3 5/16 inches long.

One saw cut round bone, as for round steak, 5/8 inch thick.

One saw cut proximal humerus, as for pot roast, 2 inches, from Structure 6.

Immature humerus, handsaw cut, from STP-11.

Tibial tarsal and immature metacarpal, from Structure 6.

From Feature 5, these are minimal counts:

Two immature tibia.

Two immature metacarpals.

Two immature metatarsals.

Six first phalanges, seven second phalanges, and one third phalanges.

Fourteen small ribs; only one rib fragment from a larger rib.

Seven small vertebrae, mostly lumbar identified.

Many broken cattle skull fragments, further identification not attempted.

All of the identified bones from Feature 5 are immature. Size differentials suggest that at least two animals are represented. The bones which are present, versus the bones which are absent suggest that two calves were selected for slaughter, and these bones result from burning and disposal. This may have occurred as a single or separate episodes. It is likely that the disposal site was Feature 4, where burning is known to have occurred along with disposal (see description of Features 4 and 5).

A few scattered mandible and long bone fragments from a single deer, goat, or sheep were also found on the site.

Other

A quantity of peach pits were observed, particularly in the Feature 5 fill. They were probably associated with canning or other preserving activities. Chicken eggshell fragments were also found throughout the Feature 5 deposit and in Feature 4.

Economic/Industrial

A wide variety of screws and bolts ranging from 1/4 inch stove bolts to 4 1/2 inches long up to one bolt 5/8 by 10 inches were recovered. A number of washers, including 1/4, 5/16, 1/2, and 5/8 inch sizes. Square and hex nuts, many attached to screws or bolts, including one 1 1/4 inch hex nut and a thumb screw. Additional fasteners include a rivet burr and two split rivets. Baling wire and barbed wire fragments. Copper tubing scraps, 3/16, 1/4, and 5/16 inch, one piece with a flare nut. A scrap of 3/8 inch wire cable, and one of heavy woven wire mesh, six strands to the inch. Ends of used solder bars. A 3/8 by

1 3/4 by 18 inch iron bar. Two lengths of chain, one is 38 inches of sash chain, the other has seven 1 3/4 inch links. Part of a cast iron gear, approximately 10 inches in diameter; a ball bearing race, and an iron castor wheel. Small lengths of 1/2 and 1 inch reinforced rubber hose, one with a brass hexagonal hose fitting. Various lengths of iron rod 1/2 inch diameter; most of the longer lengths have fittings normally used for securing wood stave water (or other liquid) tanks.

Identified tools include several mill file fragments; an adjustable hacksaw frame; a hacksaw blade with 20 teeth to the inch; a handsaw blade with 5 teeth to the inch, probably for ripping; a pair of slip-joint pliers; a 1 inch box end hex wrench; and an unsized allen wrench.

Agricultural or dairy related items include: a dairy thermometer similar to one pictured in a Sears catalog (1908:192); a 9 inch diameter milk can lid; a rubber teat cup from an automatic milking machine embossed "FOR BEST SERVICE/KEEP LINER STRETCHED TIGHT/TEAT CUP PAT. 1916029" found in Structure 6 which dates after 1933 (Tod 1977:171); seven spring harrow teeth; two sickle bar teeth; one shovel shaped cultivator tooth; and two harness rings, one 2 3/4 inches diameter, the other 2 1/4 inches diameter with a leather strap fragment.

Architectural

Plumbing

The units at the northwest corner of Structure 2 contained many fragments of sewer pipe; other fragments were scattered over the site. The Structure 2 vicinity also produced 1/2- and 3/4 inch pipe lengths and fittings, although examples were not restricted to that vicinity. A 1 1/2 inch slip nut for sink drains, a 1 1/4-by-18 inch brass drain pipe, as for a washbasin drain, and a faucet handle were also recovered from the vicinity of Structure 2. Broken porcelain toilet fixture at the northwest corner of Structure 4. Larger sizes of pipe remain in place as a part of the water distribution system depicted in Figure 3.1.

Electrical

Several split nail knobs were recovered throughout the site, including one marked "P.P. INC/ALLIGATOR." The promotion and popularity of split knob insulators began ca 1907 (Tod 1977:14). Porcelain Products, Inc. was formed in July 1927 with the merging of six porcelain insulator companies; "Alligator" was a trade name used on their split knob insulators (Tod 1977:91-93). Standard porcelain wall tubes were also present; they normally go hand-in-hand with split or solid nail or screw knobs. A few porcelain cleats were also found, these were only in popular use prior to the promotion of split knobs due to the relative difficulty of installing the cleats. Solid copper wire fragments in 18 and 14 gauge were recorded; these fragments were no longer covered with the insulation they once had; they are standard household wire sizes for the time period of site occupation. Four standard brass light bulb bases were recovered, along with two 2-prong line plugs. Unidentified fragments of an electrical porcelain fixture, and fragments from two porcelain based knife switches were also found. The knife

switches would have been appropriate for mounting in line with fuses at the point of structure entry for electrical supply lines.

Seventeen carbon cores from dry cell batteries were recovered, 10 of them from Feature 5. A D-size flashlight-type battery was also found, along with a flashlight bulb and lens.

Hardware

Hardware was widely scattered over most of the site. Many of the items recorded were found in Feature 4, the units at the northwest corner of Structure 2, and Feature 5. They include: two 4 inch strap hinges, 41 wire nails, four machine-cut square nails, 23 wire staples ranging from 3/4 to 1 3/4 inches, a residential door hinge, and a roller shade bracket. Window screen fragments and a formed sheetmetal adjustable curtain rod were also recorded.

Materials

Materials were limited to random-sized scraps of milled lumber, many of which were found in Features 4 and 5 and which exhibited evidence of burning. Most of the lumber fragments are nominal 1 inch thick pieces, although trim fragments were also noted. A few pieces had traces of green paint. Tar paper, window screen fragments, and pane glass fragments were recovered, primarily from Features 4 and 5.

A single fragment of unglazed, white, hexagonal floor tile (Cat. No. 86) from Feature 4 is the popular 1 inch size often used in bathrooms contemporary with this site. From the same feature came a fragmentary doorknob glazed in mottled brown (Cat. No. 78). The body is composed of layers of different colored clays, made by the process called Neriage.

Transportation

A few items specifically related to transportation were recorded at scattered locations over the site. An "AC" automotive-type spark plug was found in the vicinity of Feature 3 (garage). Two hub caps and a California license plate (no data) were also recorded. An internal combustion engine valve and head gasket were noted, along with a battery hold-down bolt, an exhaust pipe hanger, a battery cable, two types of piston rings, and an armature for an electric starter or generator. A 12 1/2 inch long (centers) 1/2 inch diameter tie rod was collected during the excavation of Trench 2. Many of these items could have been associated with agricultural machinery. Four horseshoes were also noted.

Other Artifacts

A bird legband (Cat. No. 23) was recovered in the fill above the upper stairs of Structure 2. The aluminum band is 3/8 inch wide and 9/16 inches in diameter, lettered as follows: "Return to Dept Fish & Game/Sacramento 353260." Inquiries to the Department yielded the information that all of the older records have been destroyed, but that from the size, number, and location, the band was

probably placed on a young pheasant during the early 1960s. At the time, there were 24 hatcheries and 1400 brood-out pens where young game birds were raised for six weeks, and then released to private groups. In the 1950s, the Department raised 100,000 chicks a year (John Massie, personal communication 1989).

When it became too costly to purchase wild or privately raised birds for liberation the state's first game farm was authorized in 1908, and by 1920, ring-necked pheasants were established in every county. The first statewide hunting season was held in 1933. Through the years, policies varied from the banding of wild birds used for transplanting or breeding to the sale or outright gift of hatchery chicks. De-emphasis of the game farm program began in 1951 for a number of reasons: stocking did not increase pheasant populations in areas where they were already established; even heavy stocking in poor habitats produced few, if any, wild birds; survival of game farm pheasants was low; wild pheasants trapped and released elsewhere survived better than game farm stock; and there were adequate refuges on private ranches or lands closed to hunting. By 1961, only two state game farms were still in production, and one of these was at Los Serranos, at the California Institution for Men at Chino, relocated to Vacaville in 1964. Since research demonstrated that the pheasants traveled only an average of 1.3 miles in the first year after banding, increasing only to 1.6 miles for birds killed 1-4 years after banding (Harper 1963), it is likely that this band was affixed to a pheasant at Los Serranos prior to 1964.

Additional items include 10 small flower pots, two of which were painted green; three lead foil tubes, one marked "RIBBON DENTAL CREAM/COLGATE"; four springs for 3-piece clothes pins; a 3 inch diameter double convex glass lens; a mousetrap spring; and a variety of small spring wound watch and clock parts, probably representing one of each. A watch chain loop was also noted. A razor blade holder and an adhesive tape spool along with fragments of 1/8 inch rubber tubing.

6. SYNTHESIS

Various sources suggest the possibility that CA-RIV-3508-H was occupied prior to 1911 (Chapter 2). However, a careful search failed to find any evidence for an earlier occupation or structure. The Strong family, as landowners, could be expected to have at least minimal comforts, and evidence would be anticipated in the archaeological record. However, all deposits found were thoroughly tested and the earliest known occupation years do not seem proportionally represented by the recovered sample. This may reflect consumptive habits, the relative availability of disposable or replaceable products, or both. Feature 4 appears to have been a primary refuse disposal area and, as such, seems quite close to the house. Strong, and later Billingsley, as landowners may have deposited their refuse at a greater distance, perhaps even hauled it to another property, whereas tenants may have been less disposed toward such an effort. In any event, a thorough search including the use of a metal detector and shovel tests, failed to locate any other substantial deposit of material goods or remains thereof.

Differences in floor level, foundation construction, and the presence of a cold joint strongly suggest that the north and south portions of Structure 9 were constructed at separate times (Figures 4.28 and 4.31). This is contrary to previous descriptions of the structure, which suggest no modification over the life of the structure. The cobblestone construction utilized for the southern portion of the Structure 9 foundation is similar to that used for Structure 2. This is consistent with the report that both structures were built in 1911. The northern portion of Structure 9 has a brick foundation. The northeast corner of the southern portion is also of brick but the joint between the two is a cold one, which is not consistent with construction as a single unit. The built-up aspects of the southern portion compared to the ground surface floor of the northern portion suggests that the northern portion may have been added at some time after initial construction. Later, possibly when Structure 6 was built, the western foundation of Structure 9 was rebuilt by the simple process of placing forms on either side of the existing brick and pouring concrete over and around the original foundation, including portions of the cobblestone foundation at the southern end.

A 1936 aerial photograph (U. S. Army Corps of Engineers 1936) which includes the project area was unfortunately discovered only after the completion of field work. The photograph was examined for comparative information, particularly the placement of structures, roof configurations, and their orientation. The relevant portion of the photograph was enlarged for this purpose, but poor resolution precludes reproduction here. A line drawing prepared from the enlargement appears as Figure 6.1. The picture was taken with the sun at a relatively low angle, obscuring some structures with shade which might otherwise

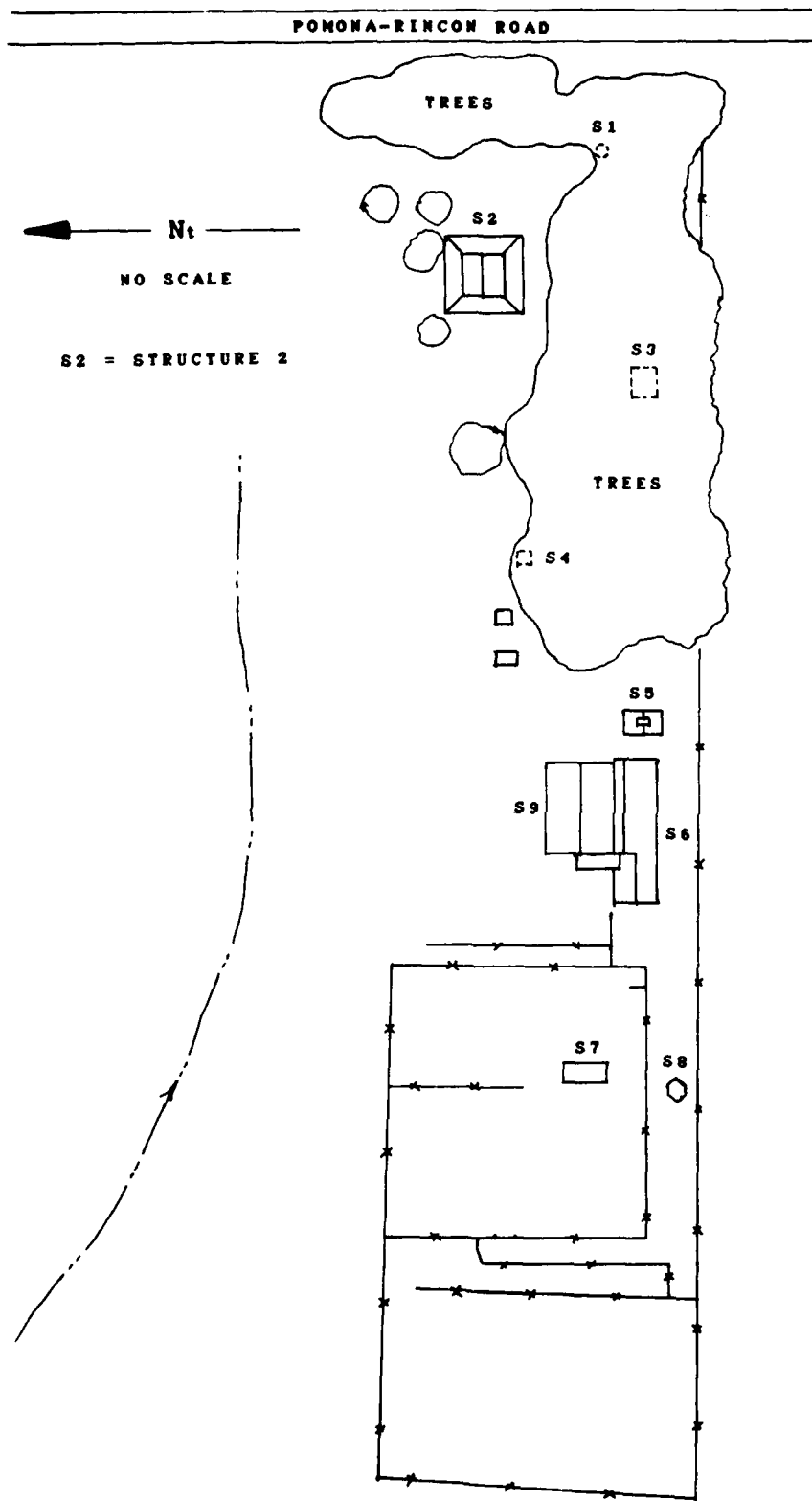


Figure 6.1. 1936 Aerial Photograph Interpretation. Drawn from an enlarged portion of 1936 aerial photograph F-129, U. S. Army Corps of Engineers, Los Angeles District.

have been visible. Structures 2, 5, 6, and 9 were sufficiently clear to reconstruct their rooflines. Structures 7 and 8 were reliably located but details could not be discerned. Structures 1, 3, and 4 did not show adequately for positive identification; their projected positions correspond with indistinct differences in the photograph and they have been indicated with dashed lines. Two structures(?) appear to the west of Structure 4 for which no archaeological evidence could be found. Shovel test pits 21 and 22 were excavated in the vicinity of these structures based on metal detector readings (Figure 3.1). Amorphous ferrous metal, a few wire nails, and window pane fragments were found at shovel test pit 21. A 1/2 inch diameter iron rod fragment, some charcoal, a few ceramic fragments, and two pieces of sawn cattle bone were recovered at shovel test pit 22. Backhoe Trench 5 was also excavated at this location, crossing shovel test pit 21 with an approximate north-south orientation. No foundation remains or other structural indicators were found.

Structure 2 has a high gable oriented parallel to the long axis of the structure (east-west), superimposed upon a low hip roof. This type of construction frequently provides one or more attic rooms. A comparison of proportional measurements between Structures 2 and 6 on the aerial photograph and foundation measurements obtained during the study suggests that there was an insufficient length of roof to cover a porch on the east or west sides of the structure. Shadows make interpretation of the aerial photograph difficult; the roof may have been large enough to cover a porch on the north or south side of the structure. It is likely that such a porch, if present, was on the south side of the house rather than the north side. Mr. Lillibridge (personal communication) did not clearly remember where the residence entrance was located, adding that it probably faced the road (Pomona-Rincon Road). Although a conclusive resolution has not been reached, it appears likely that the entrance was on the south side of the structure, based on the presence of an adjacent drive on that side, the relative distance from the Pomona-Rincon Road to the east, and the potential for the existence of a roofed porch on the south side. If the south edge of the roof was supported by piers, as the north side of the contemporary Structure 9 was, then evidence of those piers would likely have been obliterated by known demolition activities and the proximity of the existing access drive.

Structure 5 has a gable roof oriented east-west which corresponds to the existing structure. An additional feature, no longer present, is a rectangular projection straddling the gable and oriented north-south. Details are obscure in the photograph and the object may also be two square projections on either side of the gable. This projection(s) corresponds to existing openings in the ceiling, and blocked openings in the roof supporting the presence of required ventilation for the milk house.

The roof of Structure 9 appears to have been a gable-type roof with the gable oriented east-west. Shadows in the aerial photograph suggest that there may have been a vertical gap at the gable, with the southern half of the roof rising higher than the northern half. An entry or shed extension (no foundation) was covered with a shed roof at the southwestern corner of Structure 9; this roof section overlaps and is apparently joined with the roof of Structure 6. Structure 6 also has a gable roof oriented east-west. The north side of the portion of Structure 6 adjacent to Structure 9 is elevated with respect to the

rest of the structure, causing the gable section to be farther north along this section of the roof. A feed storage loft is the most reasonable explanation for the increased elevation of this portion of the structure, which is located over the feed alley.

Review of the 1939 dairy regulations (State Dept. of Agriculture 1939:XXII) and the structures and features comprising this site demonstrate that the dairy was consistent with contemporary dairy standards. Only a few minor discrepancies could be found where the dairy did not meet placement and dimensional standards which became effective after the dairy was sold to the Orange County Flood Control District. The dairy could certainly have supported the 60-cow herd reported. The length of the milking barn is sufficient for the support of 20 stalls, more than adequate for a 60-cow herd. It was evident from structural changes (reduction of stalls) and the presence of a milking machine (rubber teat cup liner) that attempts were being made to "modernize," perhaps to economize as well. The quality of the observed modifications (holes punched in the slab for posts and not refilled with concrete), however, suggests economy as the driving force. It seems likely that this dairy met certification requirements for most if not all of its operating history, perhaps in contrast to many of its neighbors.

It would appear that in 1939, most of the Prado Basin dairies still had difficulty in complying with the specifications. Some, apparently, did not even try to upgrade their facilities and continued to operate under provisional permits issued by the regional agency because of the imminent construction of Prado Dam. Details recorded in the appraisal reports or observed during field work allow comparison between the archetypical model of the 1939 code and the dairies actually operating in the Prado Basin [Swanson and Hatheway 1989:74].

CA-RIV-3508-H may be characterized as a late, single-family, dry-farm, feed-lot dairy operation. The site represents the last phase in the evolution of a stockraising industry which began in 1839 under Mexican rule. Although settlement and use of the area began in 1839, occupation of this site is not convincingly documented until 1911, when John Strong built a house (Structure 2) on property he purchased in 1898 (Chapter 2). Strong later sold the property to Billingsley, who operated a dairy which he later rented or leased to various tenants, until he sold the property to the Orange County Flood Control District in 1938. The property continued to be rented, but all of the structures (except Structure 5) were removed by 1941.

One concern of the research was to establish whether rumored occupation of the site prior to 1911 could be demonstrated. Of the 31 ceramic items which were dated, 17 could have been manufactured prior to known occupation of the site. Three items were manufactured before the period of occupation; one of those could not have been made after 1878. Only seven of the items could have been manufactured after the known period of occupation. Considering the 10⁺-year time lag frequently allowed for ceramics in an archaeological context this distribution would be expected. The few items which predate known occupation

may represent earlier use of the site but more likely accompanied the Strong family ca 1911. This house was constructed following a second marriage for Mr. Strong, suggesting previously acquired possessions; and he was known to have been in the area by the late 1880s (Chapter 2).

Glass bottles tend to appear in an archaeological context more quickly than ceramics. Only two glass artifacts are dated with certainty to a period prior to known occupation of the site. Two additional items with a potential for manufacture before occupation were dated from design patents. The use of design patents tends to persist for many years, and they are only reliable as a guideline for the first date of manufacture; termination dates depend upon additional information. Sixteen additional items could have been manufactured prior to 1911. Fifty-two dated glass artifacts were made after the sale of the property to the Orange County Flood Control District; 47 of these were made after 1944. Nearly all of these later glass artifacts were recovered from Structure 2 or Feature 5. It appears likely that the fill in Feature 5 (Structure 2), largely composed of refuse, became an attractive disposal location for subsequent occasional visitors. Certainly, some of the more recent beverage and condiment bottles remain from casual users of the property.

No evidence was found to suggest direct sales of milk from this dairy. Common practice in the Prado Basin during the operation of this dairy was wholesale supply to local creameries for processing and distribution, largely to Orange County (Swanson and Hatheway 1989:passim). The presence of several milk bottles from the surrounding region suggests a dependence on commercially-processed milk rather than the raw milk produced on site.

A degree of self-sufficiency is evidenced by the presence of canning jars and lid liners, normally used for home preservation of fruits (many peach pits were present), vegetables, and, by some, meats. The cattle remains discussed above suggest that at least two immature animals were butchered on the premises. Some of the cattle bones were cut with a handsaw, suggesting home butchering. However, a majority of the observed cut bones were cut with a bandsaw, normally an indication of commercial butchering. The cuts which were determined are generally cooked by stewing or braising, a method considered necessary to ensure relative tenderness, and consistent with the ceramic tablewares recovered during this study.

Hunting does not appear to have been prevalent during the period of occupation. A single .44 Colt pistol shell case was recovered which may have been deposited by full-time residents. Nor was any evidence found that wild game was consumed, with the possible exception of the partial remains of one animal identified as a deer, goat, or sheep. A quantity of shotshell cases, .22 long shell cases, and clay pigeon fragments was present on site. These, however, were deposited following the termination of occupation, many within recent weeks. A large selection of common food cans and condiment bottles and jars suggests that much of the food consumed was purchased at stores.

Although specific identifications were few due to the absence of the paper labels commonly used during the occupation period, it was apparent from glass container shapes that pickles or relishes were frequently present. Other condiments recognized from container shapes include mustard, catsup, and sauces.

although they occurred in lesser numbers than pickles, relishes, or canning jars. Home brewing may have occurred on-site as evidenced by the presence of stoneware jugs and a crock with the identification of the A-1 Hop & Malt Co. This is a No. 6 stoneware crock, which would comfortably hold five gallons. This activity may have occurred during prohibition, but the rural location would have favored the convenience of a readily available supply at any time. Cost or personal preference may also have been a factor.

The presence of Japanese ceramics tends to support occupation by a Japanese family as suggested by informant(s) (Chapter 2). The wares recovered, however, were readily available and occasionally popular throughout the general population. No other evidence for Japanese tenants was discovered, such as butchering practices or the presence of everyday tableware.

Several toys were recovered (tricycle, marbles, dolls, etc.) confirming the presence of young children of both sexes. Adequate temporal placement could not be determined, however, to associate the toys with one or more particular families.

The initial water system appears to have been established at or about the time Structure 2 (Strong residence) was constructed (1911). The initial system consisted of a well and a windmill mounted on a triangular angle iron tower. It is not clear whether a distribution system was also installed at that time. Wind-powered pumping systems, however, virtually require a storage tank of some sort to provide a reliable supply of water. Both of the known water tank foundations (Structures 4 and 8) were built of different materials in a different style than the 1911 structure foundations (poured concrete and tapered sides versus straight sided cobble and mortar). The water tank foundation attributes are more similar to those of Structures 3 and 6, built in 1931 and 1926 respectively. Two possibilities are apparent: (1) the original water tank may simply have been replaced at a later date at the same or a different location by any of the owners or tenants--it is clear that Billingsley or one of his tenants did put in a water tank at some time (Chapter 2); (2) Strong may have put extra care in the construction because of the anticipated weight of a water tank, either on his own or as a result of hiring an experienced person to do the work. Structure 8 may have been the earlier tank location for several reasons. It is smaller in area, presumably supporting a smaller tank; replacements and additions tend to be larger in the normal course of events. The hexagonal shape of the Structure 8 foundation would have been more popular at an earlier date. Structure 8 was heavily overgrown by two trees within the foundation, so much so that the structure had been overlooked during previous studies, whereas Structure 3 was readily apparent and included a concentration of the fragments of a porcelain toilet on the attached concrete pad.

The portions of the water system exposed or traced during this examination suggest that both water tanks were in use at the same time for at least a portion of their respective useful periods. The water distribution system was set up in such a way that water could flow to Structure 7, the water trough, from either the tank at Structure 8 (gravity flow from uphill) or under pumping power from the well (Structure 1, located down hill). This is a typical practice for the use of intermittent pumping power, such as from a windmill. The practice appears to have been carried on after replacement of the windmill

by an internal combustion engine or electric motor. The same situation appears to have been true for the residence (Structure 2) and other structures supplied by the system (Structures 5 and 6/9 at a minimum). A check valve would have been present at the well in order to maintain prime for the pump. This is particularly likely in later years when an engine- or motor-driven pump was in use. The length of the distribution system suggests that additional check valves might have been employed; one was tentatively identified at Feature 1.

Pollen samples recovered from the center of Trench 10 and from within and under Feature 5 were examined at the Palynology Laboratory at Arizona State University (Appendix A). Several circumstances suggest that the results of the pollen study should not be considered reliable. The samples submitted to the laboratory were smaller than those normally processed at that laboratory, in terms of the laboratory's curation practices and allowance for a second analysis of the sample. There are two principal concerns with the conclusions: (1) that Trench 10 was seriously disturbed to a level of 120 centimeters (approximately 4 feet), the total depth for which samples were taken. This conflicts directly with stratigraphic observations during excavation of the trench, when three distinct strata were identified. The strata observed were: 0-28 inches (71 centimeters), dark brown, moist, friable, sandy loam; 28-37 inches (71-94 centimeters), light brown coarse gravels and granitic cobbles; below 37 inches (94 centimeters), brown coarse silty sand. No cultural materials were observed in any part of the 211 feet (65 meters) long trench. (2) there was no identification of pollen from eucalyptus trees. Trench 10 followed the western edge of a dense grove of eucalyptus trees. The same grove extends farther to the west beyond either end of the trench, nearly surrounding the trench and Structure 2, west of Trench 10. Several small eucalyptus trees are growing within Structure 2, two at the edge of Feature 5. The grove was present before 1926, when Billingsley purchased the property. In contrast, a palynological study at the Aros-Serrano adobe, a short distance to the south with a small population of eucalyptus trees, identified eucalyptus pollen in adobe mortar samples (Gregory and Schoenwetter 1987b:136). Eucalyptus was also identified a number of times in the Rincon townsites samples, becoming so prevalent at times that it hindered interpretation of the samples (Gregory and Schoenwetter 1987a:169). Therefore, although it is apparent that pollen has been preserved on-site in sufficient quantities for meaningful analysis, the results from the samples recovered during this analysis are considered inconclusive. However, the purpose of this study is to determine whether the site can be considered a significant site and, if appropriate, to recommend mitigation measures. The palynological study confirms a viable population of pollen and provides a basis for recommending sample collection methods.

The Aros-Serrano adobe (CA-RIV-2778-H), located only 1.2 miles to the south, was the subject of a similar investigation completed in 1987. At the Aros-Serrano adobe, artifacts were strongly representative of women and children, food preparation and consumption, and household maintenance. A variety of shell cases was recovered, ranging from .22 caliber to .50 caliber ammunition, most of which were meant for rifles. A number of shot shell cases were also present. Many of the shell cases are obsolete and were clearly deposited during occupation of the site, in contrast to findings at CA-RIV-3508-H. Buttons, jewelry, and toys are more widely represented. These differences reflect the different orientation of the two sites. The Aros-Serrano adobe was

occupied considerably earlier than the Strong ranch, 1871 versus 1911. Known numbers of children are also larger at the adobe. The adobe functioned as home for part of an extended family and operated primarily as a farm, while milk production for cheese and the operation of a store on site occupied secondary roles (Greenwood, Foster, and Duffield 1987:passim).

The Serranos, who added a cow barn in 1924 and a milk house in 1936 to an existing diversified farm, never had a silo at all, and the ground plan reflected opportunistic addition of new buildings to an already well developed property [Swanson and Hatheway 1989:77].

Although a fairly complete history was developed for the adobe, relatively little is known about milk production at the site and no remains of the barn or possibly related structures could be found for archaeological interpretation. As a farm family operation it is possible the structures were much less substantial than those at CA-RIV-3508-H, and lacked foundations.

The Strong ranch/Billingsley Dairy appears much more businesslike in that there are fewer ornamental items, and considerably less evidence of women and children, although they were certainly present. Of some interest is the quantity of canning jars and lids at this site, where little interest in subsistence hunting is apparent. This contrasts with the collection at Aros-Serrano where hunting activities are well represented, presumably for consumption as evidenced by the variety of wild game represented. Home butchering was practiced but not to the exclusion of purchased cuts. Preservation of fruits or vegetables by canning, however, is poorly represented at the adobe. This could be because of readily available commercial products through the family store or differing preservation methods, such as drying, possibly culturally inspired.

Billingsley apparently built his dairy from experience or with advice. The dry-lot operation was laid out efficiently and clearly with current regulations and the future direction of regulations in mind. The regulations with which this dairy is being compared were adopted a full 13 years after the milk barn was built, during a period of fairly rapid change in the milk industry, yet the milk barn apparently remained in full compliance. The dairy lacked some of the features enjoyed by a few of the neighboring operations, however.

The Reichmuth dairy, located south of the Pomona-Rincon Road and Pioneer Avenue intersection on 160.59 acres of land, had a substantial number of improvements. The 1940 appraisal listed a house, dairy barn, barn, milk house, two cow barns, a feed farm, bunkhouse, two garages, a tool house, tank house, and various corrals and water troughs. All of the structures were listed as being in good or fair condition, with none being more than 10 years old. It was built as a single family dairy with provisions for a work force and is probably the last dairy built in the Prado Basin (Swanson and Hatheway 1989:103-104).

Considered one of the largest dairies in the Prado Basin, the Abacherli Dairy was run by a single extended family and supported a 90-cow herd. The 233.63 acres were also used for the production of irrigated truck and field crops, grain, and pasture (Swanson and Hatheway 1989:106-107). The cow barn at

this location measured 48 by 30 feet, only 1440 square feet compared to the CA-RIV-3508-H milking barn with approximately 1700 square feet which serviced only 60 cows. This suggests that the Abacherli Dairy milking barn was a walk-through type rather than the head-in type at CA-RIV-3508-H. It also points to the economic benefits of a walk-through milking barn; the structure likely cost less along with being more efficient in terms of labor costs. Even though the dairy appears to have been largely in compliance for certification purposes, difficulty in adapting the head-in milking barn to more efficient methods may have contributed to the apparent decline during the last few years of operation at CA-RIV-3508-H. This could have been particularly true with the fall of dairy product prices following the stock market crash of 1929 (Swanson and Hatheway 1989:65).

Dairy production controls were in place by the summer of 1933 and in 1935 the Milk Stabilization Act of California required certification of one sort or another. Standards were established for milking barns and milk houses. Existing dairies were exempt, so long as they did not make repairs constituting 75 percent of the total establishment. In southern California the climate permitted the keeping of herds in corrals, using the barn only for milking (Swanson and Hatheway 1989:66). This meant that the milking barn constituted a substantial portion of the establishment. Any meaningful alteration toward the efficiency of the new milking parlors meant major renovation or replacement, likely causing all aspects of the establishment to fall under the new regulations, raising the cost even more.

7. ASSESSMENT AND RECOMMENDATIONS

Evaluation

Regarded solely as an archaeological site on an individual basis, CA-RIV-3508-H would not satisfy National Register of Historic Places criteria. The architecture is not the work of a master, and the subsurface deposit does not retain sufficient integrity or scientific research potential. The site, in itself, is not unique to the region, or associated with prominent individuals. The extensive clearing, trenching, and subsurface evaluation have demonstrated a lack of association for the plentiful material remains, and did not encounter any evidence for the reported adobe or earlier occupation of the site.

However, the site is a valid contributing element within a largely contiguous historical district representing the stockraising industry which began in the rancho period and evolved through time, socially and economically. CA-RIV-3508-H is a good example of a late, single-family, dry-farm, feed-lot operation--the final phase of the stockraising industry which began under Spanish settlement. The milk house is a rare surviving example of its kind, probably the last one in Prado Basin. All the details of construction and operation survive.

Recommendations

1. The surviving milk house has interpretive value relevant to a major local industry which has enjoyed a rich history of development. It is illustrative of a methodology which has all but disappeared in the dairy industry. There is every reason to believe the structure could be restored to working order. The milk house should be relocated to an appropriate regional historic park as a rare surviving example of a significant phase of dairy industry development. Restoration should include such details as retention of the rust stains of the milk cans on the floor.

2. Although the archaeological record has been largely exhausted, a wealth of information regarding the operation of the Billingsley dairy remains scattered through public and private records. Questions remain concerning the relationship of Billingsley to his tenants, such as: who paid for improvements to the property? How much did he participate in the running of the dairy? As a resident owner? As an absentee owner? Are there photographs or other means which would aid the reconstruction of the ceiling vents in the milk house? Additional information regarding CA-RIV-3508-H would best be acquired through historical research: public records of the families can be augmented by contact with surviving members, family photographs can be invaluable, as can memories;

and records on state dairy certification, assessments, leases, milk sales, and the milk distribution network.

Implications for the Research Design (DO-16)

The research design developed to provide a context for the historical sites in the Prado Basin (Greenwood and Foster 1989) established the significance of stockraising as the underlying economy through nearly a century of occupation. The single-family farm was the most frequent form of ownership and operation within the Prado Basin area, as documented in an earlier study (Swanson and Hatheway 1989:139-140). Of the dairies in the Basin, approximately one-half survived into the 1940s; the balance had been acquired by large corporate enterprises, rented to tenants or large landholders, or simply abandoned. Many of those which persisted were marginal or obsolete, and it is possible that some were holding on in anticipation of purchase incident to the construction of Prado Dam.

The Billingsley Dairy would be considered a small family enterprise. It belonged to an earlier farming or agricultural tradition, and like many others, had changed hands and presumably, function, since its first ownership and occupation. Its physical presence on the landscape would depend upon when it was built, and whether it was intended at that time as a general subsistence farm, possibly with a dairy component, a farm which evolved into a dairy, or a complex built specifically as a dairy. No evidence of nineteenth-century structures or occupation was found during the test excavation. All the observed remains seem to indicate that this complex was constructed as a dairy.

Construction was typical of the period between about 1910, when most local dairies consisted simply of a barn and a milk house, and the 1930s, when the smaller but more sophisticated milking parlor was developed as a specialized facility for continuous milking with the use of machines (Swanson and Hatheway 1989:66). At the Billingsley dairy, milking was done by hand in the barn, with both the milkers and cows on the same floor level. By the 1930s, most of the family-run dairies in the Prado Basin were deteriorating, many were rented out, and owners were confronted with the need to replace obsolete facilities or upgrade them to meet the Agricultural Code and Regulations. Other than a few enterprises which pooled the resources of extended families like the McCarty, Abacherli, or Mooschekian groups, the single-family operations like Serrano's or Billingsley's had too little land and too few cows to prosper.

The site reflects the changing economic conditions within the Prado Basin during the early years of the twentieth century. The dairy industry was growing rapidly, as improved transportation enabled it to serve a market which had expanded well beyond local boundaries. At the same time, the larger volume led to central bulk processing, reducing the role of the small family dairy to a feed lot selling its raw fluid milk to one of the large corporate aggregates. The single-family dairy may be viewed as the final stage in a cultural sequence as old as the open range stockraising which had originally led to the settlement of Prado Basin during the mission and rancho period.

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APPENDIX A:

CA-RIV-3508-H PALYNOLOGY

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Project History

The Palynology Laboratory received a request to undertake analysis of 10 members of a series of 23 sediment samples from CA-RIV-3508-H, the Billingsley Dairy site, early in March 1989. No specific research objective was defined for the study; a subset of 10 samples was to be selected and the pollen they contained was to be evaluated in relation to previous pollen studies conducted at historic sites in the Prado Basin.

The submitted samples ranged from 15 to 35 cubic centimeters volume. The pollen extraction procedure normally employed at this laboratory is designed for samples of 75-150 cc volume, and our normal expectation is that samples of ca 500 cc volume will be submitted to provide leeway for laboratory error and to allow curation/retention of a potentially re-analyzable sample. To accommodate the analysis, some samples from segregate stratigraphic levels of Trench 10 and Structure 2 were combined. Pollen extraction, identification, and counting were completed by Ms. Alice H. Whallin. I am responsible for the interpretation of data so provided, and for preparation of this report.

Results of the Analysis (Figure 1)

The pollen spectra of all samples are dominated by Cheno-am pollen, with the exception of the sample collected at greatest depth in the fill of Structure 2. In that sample, the amount of Cheno-am pollen is comparable to the amount of maize pollen, but the latter is very obviously overrepresented as a result of human modification of local pollen rain. If the constraining effect of local overrepresentation by maize and cereal pollen is mathematically eliminated, all the samples yield statistically equivalent pollen spectra. The variety of observed pollen taxa is unusually low for the number of observations and samples analyzed. Alternatively, the amount of damaged pollen is unusually high. Identifiable pollen which occurred in the form of fragmentary grains averaged 39.5 percent of the observed pollen, with the range of such observations varying from 20 to 64 percent in individual samples. No-identifiable pollen fragments ranged from 13 to 35 percent of the identified pollen.

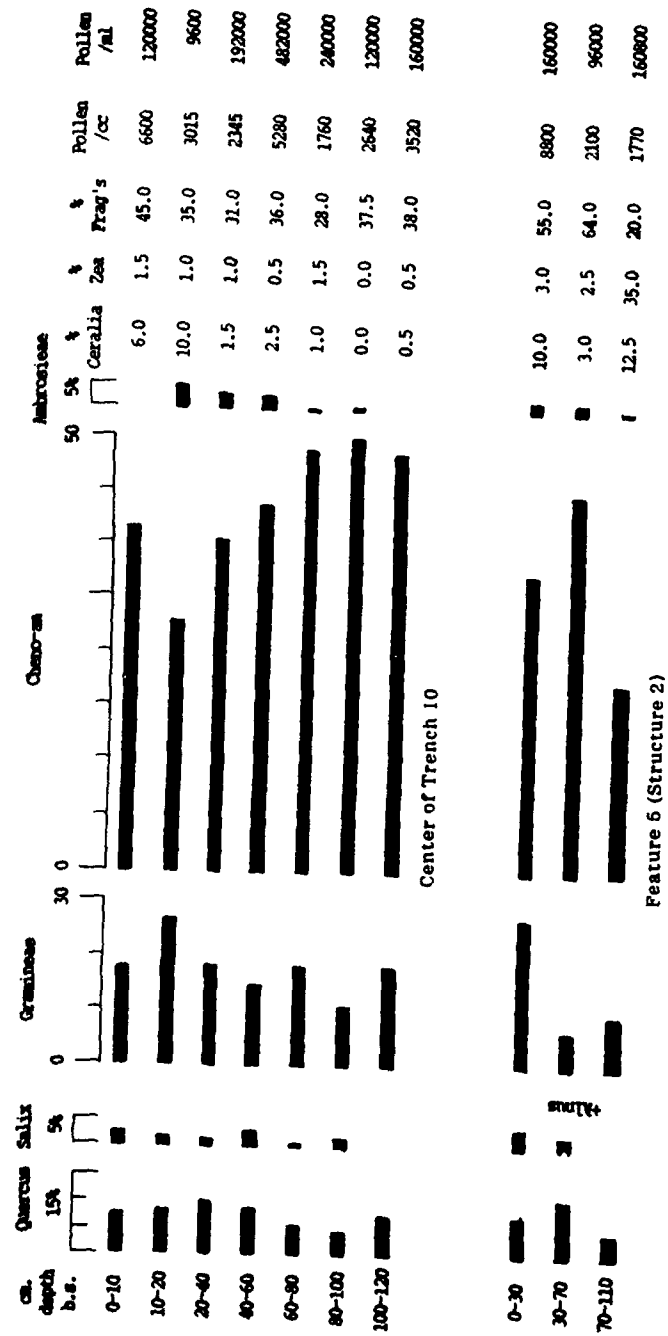


Figure 1. Pollen Represented at CA-RIV-3508-H.

Interpretation and Comparisons

The Billingsley Dairy site pollen samples contain what appears to be a badly deteriorated and depauperate pollen record. This suggests differential pollen preservation, and that some of the pollen the deposits once contained has been destroyed. However, neither the frequency of deteriorated pollen nor the pollen concentration value is progressively reduced with depth--a characteristic feature of pollen sequences in which spectrum alteration occurs as a result of differential preservation processes (Hall 1981). Nor is the pollen concentration value normally below the standard (2500 grains/cc) Hall suggests is too small to support interpretation. The likelihood that the pollen record is so altered as to be uninterpretable thus seems significantly lower than first appears. There is little doubt, however, that a "normal" pollen rain is not represented by these data. The inference that will accommodate all the facts most conformably is that the spectra have been behaviorally, rather than naturally, induced.

This interpretation is also consistent with previously determined information regarding the character of normal pollen rain:vegetation relationships in the Prado Basin. Analysis of a suite of samples collected from the present land surface at plots supporting different vegetation patterns has allowed recognition of patterned relationships of various sorts (Gregory and Schoenwetter 1987:161-163). None of the patterns so identified is represented in the Billingsley Dairy sample data. Plots heavily overgrown by weedy vegetation dominated by Cheno-am pollen producers, for example, do not yield similarly high values for Cheno-am pollen or Gramineae pollen; pasturage plots yield similarly high values for Gramineae pollen, but much higher values for Ambrosieae, Tubuliflorae, and Liguliflorae pollen. Also, each of the definable vegetation:pollen rain relationship patterns documented by surface samples is expressed within a range of variability; no two plots of the same vegetation type produce surface sample pollen records which are statistically equivalent. One of the characteristic features of the Billingsley Dairy pollen record is that all 10 samples have yielded statistically identical pollen spectra.

The question of greatest research interest that follows from this interpretation, then, is not what vegetative environment is represented by the sort of pollen record observed. Rather, it is why the behavioral event so represented is represented in this particular way.

Discussion and Conclusions

The behavioral context of the samples recovered from Structure 2 is identifiable on the basis of both archaeological field and laboratory observations and historical record. The sampled deposit was created during demolition and earthmoving operations, which destroyed the standing structures located on the property and levelled and graded the locale prior to its incorporation within the floodpool of the Prado Basin. Pollen contained in deposits created in this fashion can have three possible sources: pollen which "rained" upon the deposit from the atmosphere as it aggraded, pollen which was already trapped within sediments that were mixed with building rubble to create

the deposit, and pollen which was clinging to the rubble and so was buried with it as the deposit was created.

While the amount of pollen available as pollen rain at the location may have been considerable, the volume of deposit which aggraded at the Structure 2 location within a few hours was so great that very little atmospheric pollen could have been trapped per unit of deposit volume. The amounts of pollen recovered from the samples are far greater than could have "rained" onto the aggrading deposit in the course of months, no less weeks or days. Thus a small fraction of the observed pollen could have such a source, but that source could not account for the characteristic features of the pollen record that has been recovered from the Structure 2 samples.

The rubble of the structures which stood at the site at the time of demolition probably contained a fairly copious amount of pollen--especially the rubble of the barn, where large quantities of feed grains and hay were stored and pollen-laden dust would have been allowed to accumulate. Indeed, the local overrepresentation of maize and cereal pollen in two of the Structure 2 samples could be fairly interpreted as a product of incorporation of such dust. However, the deposits infilling Structure 2 contain a significant material culture record suggesting incorporation of rubble from the demolished residence, not the barn. In any event, the amount of the sampled deposit which is reasonably likely to represent pollen clinging to incorporated rubble cannot constitute a large fraction of the deposit volume. If this were the only source of pollen in the cellar infill, we should not have been capable of extracting a minimum of 1700 grains per cubic centimeter of sample; if it were the principle source of pollen in the samples, we would anticipate a much wider range of pollen taxa and more variability in the pollen frequency values that occurs.

It is reasonable to presume that the pollen originally contained in a sediment will be transported with that sediment if it is moved from one place to another in a fashion that will not systematically winnow the pollen it contains. The pollen record one would anticipate to recover in such a case, however, would be that trapped as one or more normal pollen rains during the period of aggradation of the deposit prior to its transportation. The data of the Billingsley Dairy samples are not such a record. However, the probable source of much of the transported sediment is not likely to have trapped a normal pollen rain.

Prior to demolition, the site was an area devoted to feedlot land use. One would expect both animal and human impact on such an intensively exploited landscape to produce an abnormal pollen rain with a relatively high degree of areally localized variability. Most likely, it would be palynologically characterized by the local overrepresentation of taxa adapted to a heavily disturbed ecosystem and the consistent occurrence of pollen of exotic taxa which were introduced to the locale to further human objectives. One would also expect such a landscape to be actively aggrading because of the masses of manure being deposited yearly, and it might be anticipated that the richly organic character of the surface would provide a very favorable environment for pollen preservation.

The quantities and frequency values of the pollen records obtained for the sediment samples analyzed from the deposits exposed at both Structure 2 and Trench 10 are fully consistent with those expectations. It thus seems probable that the pollen observed is primarily that which was incorporated in the uppermost depositional stratum at the site, created during the period of its use as a location where cattle were penned and fed. Although the collapsed rubble of the residence constituted a sufficient fraction of the volume of the deposit sampled there to allow recovery of a significant number of items of material culture, the pollen record suggests that the greater fraction of volume of the cellar infill deposit came from the land surface of the feedlot district of the site. Presumably, this pollen-rich material was mixed with demolition rubble and substrate sediment and then transported to the Structure 2 cellar cavity in bulk for additional fill.

Two qualities of the Billingsley Dairy pollen record are not fully explained by the interpretation just offered, however. One is the statistical consistency with which a pollen rain which was expectedly locally variable is expressed in the samples. The other is the very high degree of observed pollen deterioration. The former quality is perhaps adequately explained by the probable scale of earthmoving operations undertaken at the site with bulldozers and other heavy machinery. Areal localization of pollen variations was very likely scaled to territories on the order of three to five dozens of square meters, at most. Earthmoving operations which took place at the site probably were scaled to territories on the order of quarter-hectares.

Although extreme, pollen deterioration seems not to have had an altering effect on the character of the pollen spectra. That is, it seems to have affected the pollen of different taxa equally, so the relative pollen frequencies which have been observed are likely to be those of the pollen rain incorporated originally into the feedlot area deposit. This is not a normal effect of pollen deterioration. However, one of the more interesting, and yet unexplained, realities of the study of pollen contained in archaeological site context deposits is their tendency to contain either very little pollen at all (often too little for profitable analysis) or pollen which dates to the horizon of sediment deposition. Since most sediments contain pollen, one would expect that when a sediment is transported, the pollen it contains would be retained. In archeological context, then, one would expect samples of floor or wall plaster, sod roof rubble, earthen mound construction fill, or the fills of grave pits to contain quite different sorts of pollen records than occur in contemporary midden deposits. They often are different in the sense that they more frequently contain too little pollen for study. But when they are analyzable, they rarely illustrate the expected level of distinction.

The pollen of the Billingsley Dairy site samples is likely to have been transported to the locations in which it was observed. The pollen rain involved, however, was trapped less than 100 years ago in a depositional environment extremely favorable for pollen preservation, and was moved to its present location only about 55 years ago. I suggest that the degree of deterioration the pollen record of these deposits has undergone is a measure of the amount of time that has passed since transportation has occurred. If this interpretation is accurate, controlled studies relating the degree of deterioration and alteration of pollen records to the amount of historic time elapsed since

sediment transportation might provide the data for explanation of presently unresolved problems in archaeological pollen analysis.

Commentary

The comparability of pollen records recovered from the deposits sampled at Structure 2 and Trench 10 is best explained as an expression of comparable depositional processes and events. This implies that the uppermost 1.2 meters of sediments encountered at the Trench 10 location were emplaced by the grading and levelling operations employed about 1936 [sic]. While no field or laboratory evidence exists to the contrary, such a conclusion is surprising and unexpected because of the depth and volumes involved. One reason for undertaking archaeological work in the Trench 10 area was the likelihood that structural remains might exist there. Had the palynological character of the deposits been known earlier, and had they been interpreted as they have been here, a different sort of archaeological field strategy might well have been undertaken.

Although musing on "What might have been" is normally unproductive, in the present situation it suggests rather strongly that pollen study should be regularly exploited as a potentially important source of information relevant to archaeological testing operations at historic sites in the Prado Basin. Prior work has documented the potential of palynological research to establish pollen chronologies that show intra-site temporal correlation of depositional episodes (Gregory and Schoenwetter 1987), and this study documents its potential to reveal site formation process information. Such conclusions help to control and extend scientific understandings of the cultural heritage expressed at a site location, so are normally perceived as a valued product of cultural resource mitigation activity. But they also can be seen as a source of information which can influence the sorts of strategic decision-making that takes place prior to site testing. Pollen work at the Billingsley Dairy site was not expected to yield a highly significant body of information about the cultural character of the site, and in fact it did not. But it demonstrated that pollen study could have been effectively integrated into testing phase activities as a form of remote sensor to reveal the locations and character of deposits more or less likely to yield quantities of the sorts of material culture information it is profitable actively to seek at the site. This lesson should not be ignored as future testing phase operations are undertaken. Indeed, significant investments in the study of the pollen of sediment cores recovered at a site during the testing phase might often be repaid by an overall reduction in the costs of units of cultural heritage information recovered during the mitigation phase.